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Original Department.

Experimental Researches on Chronic Alcoholic Poisoning.

[Second Series of Experiments.]

(*Continued from page 344.*)

By Drs. Dujardin-Beaumetz and Audigé, Paris, France.

EIGHT pigs, of the same age and race as those of the first series, were brought to the abattoir November 2d, 1879; age, three months. Each was branded on the back with a number, which was also the number of its pen. Food to be bran, meal, water and milk; meals, two a day, the first at 9 A. M., the second, 6 P. M. Each had its trough and pen, but after its meal was allowed the freedom of a spacious yard Weight, on the day of arrival—the figures representing kilogrammes (about 2 lbs. avoir.)—

1	2	3	4	5	6	7	8
17.5;	17.7;	16;	18;	16 5;	17;	18.2;	17.

On the 11th potatoes were added to their daily rations, and the milk was stopped, the intention being to sustain but not to fatten. On the 18th Dec. preparations of alcohol were for the first time added to their food, to each a different kind of spirit being given. Thus:

To No. 1, rectified grain spirit, marking 92° C.
" " 2 ; otato spirit 10 times rectified, marking 47° C.
" " 3 Essence of absinthe.
" " 4 Crude beet spirit (flegmes) marking 34° C.
" " 5 Rectified beet alcohol, marking 92° C.
" " 6 Crude potato spirit (flegmes) marking 73° C.
" " 7 Potato whiskey rectified by animal charcoal, 92, marking 46° C.
To No 8 Spirits of absinthe containing 48 per cent alcohol.

The alcoholic liquors were obtained from the same

source as those of the previous series. The preparations of absinthe were bought, the first of M. Sauvageot, of Bercy, the second at the Central Pharmacy.

The alcohols were administered at first in the dose of 1 gramme per kilo of the weight of the animals. As for the essence of absinthe, it was taken in solution in a small quantity of alcohol: dose, 2½ centigrams per kilo. The preparation which was given toNo. 8was administered in the dose of two grammes per kilogramme. The weight of the animals Dec. 18th, (the date of commencement of the alcohol), was as follows:

1	2	3	4	5	6	7	8
26;	29;	21.5;	24;	26.5;	25;	25.4;	28.

From the 18th to the 24th they take the doses above mentioned, and seem to support them very well. From Dec. 25th to Jan. 2, 1880, the alcohol was omitted. From the 2nd to the 24th Jan. the dose of 1 gramme per kilo, is resumed. Several of the pigs cough, but this seems to result from the cold weather, rather than from the spirituous potions. No. 3 is weaker than the others, instead of sleeping as the others do, after taking his rations, he is excited, keeps walking about and shaking his head.

Weight of the pigs at this date, in kilogrammes:

1	2	3	4	5	6	7	8
35.7;	40.2;	28.5;	31.7;	40;	33.9;	36;	41.

The same dose is continued without interruption till the 21st March. We are obliged to suspend the alcohol at this date, as several of our pigs are sick, and have lost their appetite. Nos. 1, 4, and 6 have diarrhœa and void blackish material.

As for No. 3, not only this pig leaves his mess uneaten, but he refuses to rise, and at the least noise which is made about him his hair stiffens on his back, and his limbs are agitated by slight convulsive movements.

During all this period, from Jan. 24th to March 21st, the pigs are weighed regularly. The weight Feb. 1st is as follows:

1	2	3	4	5	6	7	8
42.8;	45.1;	34.8;	35.7;	43.5;	37;	40;	44.

The weight on Feb. 14th is as follows:

1	2	3	4	5	6	7	8
50.7;	59;	44.8;	42.6;	60;	48.6;	51;	60.

March 11th the weight is again taken:

1	2	3	4	5	6	7	8
56.5;	65;	50.4;	47.2	67;	53.8;	58;	71.

Interrupted from March 21st to March 26th, the experimentation is renewed the 27th, and continued till April 3d in the doses indicated above. The weight of the animals on the 26th is here given:

1	2	3	4	5	6	7	8
64;	73;	58.3;	52;	77;	59.4;	69;	79.

No. 8 becomes savage and cross, as well as No. 3; does not sleep after taking his meal, and when the door of his pen is opened he acts like a mad creature.

From April 3 to May 9th, being out of spirits, we are obliged to stop our experiments.

May 9th the weight is as follows:

1	2	3	4	5	6	7	8
70.5;	80.5;	60.5;	55;	89;	68;	78.5;	90.

At this date we obtain the liquors we require free of duties, by grant of government, and resume our experiments, the dose being increased to 1 gr. 50 per kilo. No. 8 takes 3 grammes per kilo of the liquor absinthe. No. 3 continues to get the same quantity of essence of absinthe, viz. 2½ centigrammes per kilo. This essence of absinthe is diluted with alcohol in the proportion of ten per cent.

No 1, which has been recently inoculated in the region of the left axilla with blood from a leprous patient, takes his rations well, sleeps immediately, but awakens at the least noise, and grunts incessantly. No. 2 does not always take his mess at once, and returns to it several times during the day; sleeps profoundly after his meal. No. 3 swallows his mess rapidly and becomes completely drunk; is agitated for several hours, then becomes prostrated and glum, but does not sleep. No. 4 has sometimes difficulty in finishing his meal, his actions are very feeble; coughs at present and has most of the time a diarrhœa. No. 5 imbibes rapidly the alcohol mixed with his food, and immediately goes to sleep. No. 6 seems feeble and takes a long time to finish his meal; utters plantive cries during his sleep. No. 7 sleeps profoundly after his meal. No. 8 seems strong; swallows his absinthe at once; becomes immediately intoxicated, and while this lasts he drags himself along with difficulty and seems paralyzed in his hind limbs. Does not sleep, and threatens to bite when approached.

May 23d the weight is as follows:

1	2	3	4	5	6	7	8
77;	85.5;	76;	61;	98.5;	79;	89;	101.

The above regimen was continued, with two interruptions of nearly a month altogether, till August 12th. All had gained weight during this period of about three months; No. 1 was 38 kilogrammes heavier than on the 23d of May; No. 2 had gained 33 kilogrammes; No. 3, 37; No. 4, 36; No. 5, 39.5; No. 6, 35; No. 7, 37; No. 8, 36. The alcohols were administered the most of the time in two doses, mixed with the morning and evening rations.

A memorandum made in August, after a resumption of the alcohols in the dose of 1 gr. 50 per kilo., says that Nos. 1 and 2 take their rations well; No. 2 has a little diarrhœa; No. 3, which swallows the absinthe with avidity, remains apparently quite giddy-headed for several hours, then, without sleeping, walks back and forth with head down and sullen; coughs a good deal; No. 4 is constantly lying, has diarrhœa from time to time; No. 5 has a good appetite and is more gay than the others; No. 6 remains feeble, devours his rations by intervals, and sleeps much of the time; No. 7 eats his mess and goes to sleep; seems well; No. 8 ingests rapidly his melange of swill and liquor absinthe, and seems restless and agitated; while one can punch the other hogs without provoking movement, if you hit No. 8 ever so lightly you cause him to start, or induce trembling.

September 1st the weight of the hogs in kilogrammes was as follows:

1	2	3	4	5	6	7	8
125;	125;	124;	109.5;	147;	123;	136;	145.

September 5, the spirit rations were stopped, by reason of No. 6 (the hog that got crude potato whisky) which refused to eat, and seemed to be sore-footed. Alcohols were resumed the 10th, to be again interrupted the 14th. At this date other of the hogs were affected in the same way as No. 6; their appetite was diminished, and the characteristic vesicles of aphthous fever were noted on their feet, as well as on

the snout, mouth and tongue. This is a contagious affection and was brought to the abattoir by diseased sheep.

September 27 their weight was as follows:

1	2	3	4	5	6	7	8
135;	135.5.	137;	121;	161;	131;	149;	152.

As may be seen the aphthous fever did not prevent them from increasing in weight; the loss of appetite did not last but a few days. We waited till October 3d before resuming the alcohol and absinthe. At this date we began again the toxic regimen, giving the alcohols in the dose of 1 gr. 50 per kilo., and the absinthe in the usual doses, the spirits being administered one-half with the morning and one-half with the evening meal. In a few days the animals are completely besotted, and their drunkenness, at least in the case of those submitted to the alcohols, manifests itself by a heavy and painful sleep.

The experiments were continued with slight interruptions, in the same doses,—except that it was found necessary to decrease the quantity of liquor absinthe (No. 8) to 2 grs. per kilo.—till January 1st, 1881. The weight of all the animals kept constantly increasing. The alcohols interrupted from the 2d to the 4th of January, are continued in the usual doses till the 14th, when the weight of the animals was as follows:

1	2	3	4	5	6	7	8
171;	164;	175;	169;	199;	150.5;	176;	189.

From the 15th to the 22d the experimentation was continued, but at this time many of our subjects seemed prostrated, with loss of appetite. Nos. 4 and 6 had diarrhœa; No. 7 seemed particularly feeble and had jaundice, as indicated by yellowish coloration of conjunctivæ and urine. Alcohols were stopped till the 29th, when they were resumed for a week and again discontinued for five days, on account of the persistent ill condition of several of them. All, with the exception of No. 5, had gained several pounds in weight. February 25th, after eleven days dosing with the liquors, we were obliged to stop their administration—owing to failure of supply—till April 12th. During this period of nearly two months our hogs rapidly gained in flesh as the following figures will show, being the weight of the animals on the 12th April 1881:

1	2	3	4	5	6	7	8
190;	182;	195;	193;	217;	169;	195;	212.

April 13th we administered anew, in two equal portions, mixed with the daily meals, the same quantities as previously given of the alcohols, and preparations of absinthe. Our subjects no longer tolerate these doses well; Nos. 6 and 7 vomit glairy mucus and bile and have diarrhœa; the appetites of several of the others are diminishing to the extent that they refuse their evening meal. April 30th we reduced the spirit rations one-third, and from henceforth give the hogs only 1 gramme per kilo. of weight, with the morning mess. With Nos. 3 and 8 we continue the absinthe in the same doses. These doses are persevered with till June 23d. Weight of the animals May 14th:

1	2	3	4	5	6	7	8
194;	178;	197;	194;	219;	164.5;	192;	210.

Weight, June 4th:

1	2	3	4	5	6	7	8
198;	183;	201;	199.5;	223;	168;	201.5;	217.5.

The same dosing was continued with, temporary interruption, till July 30th, at which date the weight of the hogs was follows:

1	2	3	4	5	6	7	8
215;	193.5;	217.5;	214;	238;	178;	218;	226.

The experimentation, suspended for a brief period the last of July, is resumed August 3d in the diminished dose; the animals now take their rations with a little more regularity, but they are always hebeted during the day. Nos. 2 and 5 have the best appetite, No. 3 seems to be becoming used to the essence of absinthe, at any rate the effects produced by this poison are less marked than heretofore. The weight of the animals continues to increase, though less than formerly; taken at three different dates from August 17th to September 25th, it is as follows:

Aug. 17th:

1	2	3	4	5	6	7	8
220;	194;	222;	221;	243;	183;	219;	230

Sept. 13th:

1	2	3	4	5	6	7	8
221.5;	198.5;	225;	226;	249;	189;	226.5;	234.

Sept. 25th:

1	2	3	4	5	6	7	8
219.5;	199;	230;	224.5;	252;	192;	228;	240.

At this date No. 1, which has been always weak in its limbs since the inoculation which he underwent in 1880, cannot walk exeept with great difficulty, his appetite is very poor. his breathing is labored, and when forced to exert himself, he wheezes. No 7 has also been suffering for several days, and his respiration is oppressed.

From October 1st to October 25th, the condition of the swine remains about the same. The wheezing in No. 1 is still more marked; this animal cannot rise, remains all the time on his bed of straw, and seldom finishes his mess. For several days No. 3 does not take his absinthe as well as usual, and almost always leaves part of his food untasted in his trough.

From the 25th to the 28th of October the spirit rations were interrupted. Weight of the hogs on the 28th:

1	2	3	4	5	6	7	8
215;	201;	229;	223;	251;	191;	227;	239.

From the 29th of October to the 24th of December the spirit rations were continued in the same quantities. This long period of almost uninterrupted dosing, (nearly two months,) had a very disastrous effect on our animals, as the memorandum here annexed testifies: "Their appetites are so far lost that the evening meal has been stopped. No. 6 has for several days vomited bile, and has had diarrhœa; No. 7 is affected with the same diarrhœa. For two months the weight of the hogs has remained about stationary. No. 1 cannot be weighed; this hog has been losing ground, and can take only half his usual alcoholic ration."

From December 25th to January 8th, 1882, the experimentation was suspended to enable the animals to recuperate a little. From January 9th to March 2d, the alcoholic preparations and the absinthe were continued, with one week's interruption (from February 1st to February 7th); an interruption occasioned by an intense diarrhœa from which No. 6 was suffering. This animal, in fact, had not fully recovered from the diarrhœa which he had in December, and was becoming quite lean. No. 3 has had again, and on different occasions, contracture of the limbs. As for No. 1, it had been found necessary for several

weeks to stop giving the grain spirit, and the animal subsists on nothing but milk.

Since January 16th the weight of our animals had diminished in a marked manner; this was especially observable in Nos. 3, 6, 7, and 8. Below we give the weights at three periods, beginning with January 16th (No. 1 could not be weighed):

2	3	4	5	6	7	8
211;	227;	225;	251;	189;	227;	234.

Feb. 9th:

2	3	4	5	6	7	8
205;	226;	227;	253;	183;	226;	230.

March 2nd:

2	3	4	5	6	7	8
207;	223;	226;	250;	176;	224;	228.

At this date we were obliged to stop the administration of the alcohols, our supply having failed, and no more being readily obtainable.

No. 1 succumbed on the night of March 14th. The autopsy was made 36 hours after death, with the following results:

On opening the abdomen a certain quantity of extravasated blood was found in the peritoneal cavity; the outer serous covering of the entire intestinal mass was very much injected. The liver was softened and resembled black pulp. The spleen and kidneys were found in the same condition. The lungs were the seat of the most intense congestion, and here and there numerous apoplectic foci were discovered. The heart, filled with black clots, was more voluminous than in the normal state, and its tissue seemed to have undergone fatty degeneration. The arteries appeared to be sound. The bladder was empty. Brain and spinal cord were not examined.

No histological examination was possible, as fragments saved in alcohol from the necropsy were found too far spoiled.

By referring to the above table of weights made March 2, and comparing it with the following table, registered the 1st of June, it will be seen that there was a gain in weight during the three months in which the animals were spared the toxic regimen:

2	3	4	5	6	7	8
217;	235;	232;	252;	182;	228;	236.

The animals were eating their rations with a better appetite, except No. 6, which continued feeble, and had from time to time certain seizures, which the swineherd called "convulsion fits." No. 3 had had no more contractures since the essence of absinthe was discontinued, and had gained 12 kilogrammes. No. 5 seemed well, with the exception of some paresis in his posterior extremities.

July 16th: The hogs were all carried in a wagon to the shambles of Villette. The same day No. 6 had a convulsive seizure like those which the swineherd had noted on several occasions, and was instantly dispatched. No. 3 had a similar fit, and was also killed. Nos. 2, 4, 5, 7 and 8 were sold at the shambles, July 20th.

It will be seen from the above narration that when, in July, 1882, we were obliged, from want of alcohols, to discontinue our experimentation, we had lost seven of the eighteen swine with which we commenced. Two had died from accidents foreign to alcoholism, three were sacrificed during the experimentation, and two had fallen victims to alcohol poisoning.

We shall now proceed to sum up the phenomena observed during the life of these animals, with the results of the necropsy in the case of such as were examined after death; premising, as before stated, that in this examination we had the assistance of Prof. Cornil, and that we were enabled to compare the viscera of our animals with these of healthy animals, that had never been dosed with alcohol:

CONCLUSIONS.

Our conclusions will be considered under two heads; the first will have to do with the general effects of alcohol on the economy, the second with the variable action of the different alcohols employed.

1. General Effects of Slow Poisoning by Alcohol.—In order to give method to this exposition, we will take up in their proper course the different physiological systems, and describe the symptoms noted during life and the post mortem lesions.

Digestive System—Whenever the daily dose of alcohol did not exceed one gramme for each kilogramme of the animal's weight, the digestive system bore it with very little inconvenience. When the dose mentioned was exceeded, we constantly observed, in the course of a few days, the following symptoms: Loss of appetite, more or less marked; vomiting of bile and glairy mucus; and diarrhœa more or less abundant; the stools sometimes containing a mixture of mucous and sanguinolent matters. These phenomena on the part of the alimentary canal sometimes took on so acute a character that it was found necessary to suspend the administration of the alcohol and put the animal on a milk diet. In the few post mortem examinations which we were able to make, we found an abnormal redness of the mucous membrane of the stomach. We emphasize the word abnormal, for on examining the stomachs of several hogs that had been killed while in, apparently, a condition of health, we noted that the regions of the great *cul de sac* were in all of them of a rosy-red color, while those of the cardia and pylorus were pale. In one instance only the gastric mucous membrane appeared indurated to the naked eye, but microscopic examination did not confirm the opinion that the induration was real. These alterations little pronounced, in fact, remained limited to the mucous membrane, and there was no real thickening of the walls of the stomach. In a few cases the mucous membrane of the intestines was congested; in certain points it presented a violaceous ecchymotic tent, comparable to that which has been observed in rapid poisoning with alcohol.

Hepatic System.—During life several of the hogs presented a yellowish discoloration of the conjunctivæ, and the urine was tinged with bile. Post mortem, the liver was found congested, and in certain cases its parenchyma was friable, but there was neither interstitial hepatitis nor ascites. Prof. Cornil, in his histological examination of sections of the liver of our subjects, had, indeed, observed a very marked development of the connective tissue framework of this organ, but on comparing these preparations with similar ones made from the livers of healthy hogs, he found in the latter the same abundance of cellular tissue. The hepatic veins, as well

as their connective tissue sheaths, did not seem to be inflamed.

In short, we were not able to produce in our hogs, despite the long continuance of the alcoholic regimen, any more conspicuous alterations on the part of the liver, than a pronounced congestion with jaundice.

Renal System.—Our animals never had hæmaturia; their urine, the density of which was always normal, and in which we never found albumin, was colored only by bile. The post mortem examinations which were made, revealed fatty degeneration of the kidney. M. Cornil, in his histological examinations was at first struck with the steatosis. But this fatty change is almost constant in hogs. Therefore we think that it cannot be attributed to the alcoholic regimen imposed on our subjects. In one of them there was pyelitis. Was this pyelitis produced by alcohol? We cannot affirm this, though it seems probable.

Respiratory System.—Almost all our hogs had a cough, and some of them never ceased to cough. At the post mortem examinations of the latter, we noted marked pulmonary congestion, which, in a few instances, gave rise to hæmorrhages. This alteration seems to have had a double origin. It may be attributed in part, to elimination of alcohol by the respiratory passages, and in part to atmospheric influences, the weather a part of the time being very severe. It is worth noting also that during the period of alcoholic hebetude which followed the ingestion of the spirit, and which lasted several hours, the animals remained immovable in their pens, and readily become chilled. This condition undoubtedly favored the development of broncho-pulmonary catarrh.

Circulatory System—We did not observe troubles of the circulation in our hogs. We ought to mention, nevertheless, the existence in several of them of marked breathlessness whenever we obliged them to make any exertion. There were neither hæmorrhages nor local gangrenes. As for the heart, it almost always appeared to be fatty. But this particular condition is so common in the hog (as we have been able to verify), as hardly to be pronounced abnormal. The valves were sound, but in a couple of instances (and this is certainly remarkable), we observed in the aorta and, particularly in its sinus, white patches forming a considerable protrusiou. We could hardly call these anything but atheromatous alterations, but they were limited to the first portion of the aorta, and it was in vain that we sought for them elsewhere. These disorders seemed to us attributable to alcohol poison. At the same time before affirming the fact, we await proof that such degenerative changes are not ordinarily met with in hogs arrived at a certain age, say three years and over.

Nervous System.—Our hogs did not present phenomena of excitation during the period of drunkenness, but, as has been before said, they fell immediately after swallowing their alcoholic mixture, into a condition of profound torpor, which lasted during a period more or less long. In some of them, after a season of alcoholization, we remarked muscular trembling, weakness of the limbs, and especially a very pronounced paresis of the posterior extremities. A slight shock was sufficient to throw them down, and when they were thus extended on the ground, it was with difficulty that they could raise themselves to their feet again. The microscopic examination did not in the case of these animals, reveal any lesions on the part of the nervous centres.

We did not observe any psychical perturbations, unless you consider as such that hebetude, which, in cases where the administration of the alcohol was too prolonged, followed the period of somnolence, and which disappeared after several days abstinence from the intoxicating potion. We should state in this connection, that in the hog the volume of the brain is proportionately to that of the rest of the body, inconsiderable; so one can easily understand why this organ does not play a preponderant part in the physiological functions of this animal. It is probably due to this diminutiveness of the brain that alcoholism in the hog differs from alcoholism in the man. In the latter, intoxication, whether temporary or chronic, is generally characterized by troubles of the intelligence which dominate the pathological scene; and this surely indicates the importance which is to be assigned to the cerebrum in the human race. In the hog, on the contrary, alcohol poison manifests itself by somnolence, prostration, and hebetude; it seems, then, rational to admit that it is to the low development of the cerebrum in this animal that we owe the absence of that mental perversion or craziness which alcohol produces in man.

Nutrition.—The slow intoxication by the alcohols did not prevent fattening in our animals. It will be seen from our report, however, that when intestinal troubles supervened, lasting some time, their appetite diminished, and they lost, temporarily at least, a little of their weight. The time did indeed come when, notwithstanding a sufficient food supply, their weight ceased to increase, but it was not till after more than two years of continuance of the alcoholic regimen that a definitive emaciation began. The hogs, moreover, which served as the subjects of our experiments belonged to the race called Tonquin, or Anglo-Chinese, which is disposed to fatten. Therefore, even when we restricted them to one meal a day, they continued to acquire weight. This weight, on an average, exceeded 200 kilogrammes.

The flesh of our animals did not present a healthy appearance; in the cellular tissue, whose meshes were very lax, and in the interstices of the muscles there were sanguinolent effusions. These interstitial hæmorrhages were sufficiently numerous and characteristic to attract the attention of the inspectors of the shambles, who deemed it necessary to forbid the sale of this pork. The meat, however, as M. Decroix assured us on trial of a portion of it, tasted well when cooked, and seemed as good as any pork.

2.—EFFECTS OF THE DIFFERENT ALCOHOLS.

In the conclusions which precede, we have summed up the general effects on the organism of alcohol administered every day in small doses. It now remains to consider the influence exerted by the different alcohols employed. It has been shown that all of our animals save one, which was not dosed, took a different kind of spirit: potato whiskey, grain spirit, beet spirit, methyl alcohol, rectified ethyl spirit, essence of absinthe, etc. It will also be remembered that some of these spirits had undergone rectification, and some had not. One of the potato-spirit prepara-

tions which we used, was said to be ten times rectified, and was obtained by us from M. Smith, of Stockholm.

The results at which we arrived with our eighteen subjects belonging to the two series, did not present anything like the well-nigh mathematical precision which we obtained in our first researches on acute alcoholic poisoning.

Nevertheless we have to note certain points which have a real interest. We observed in particular that in every case the crude, impure liquors (flegmes) produced results more injurious than the rectified liquors. Thus, for instance, the hog to which was given the crude grain spirit succumbed to the effects of alcoholism; the animal that got the crude beet whiskey, and which we slaughtered in the course of the experimentation, presented congestions of the digestive tube, of the liver of the lungs, and atheroma of the aorta. The hog that was dosed with the impure potato spirit and was also killed by us, had the most marked hepatic congestions.

On the other hand, those animals to which we administered the ethyl alcohol, potato spirit ten times rectified, and other rectified alcohols, presented few lesions or none at all. These facts then authorize us to believe that the latter, viz: the rectified and purified alcohols possess a relative immunity as compared with the former, whose noxiousness common experience has everywhere recognized. And if we were to classify the alcohols according to their toxicity, we should say as the result of our researches, that the least harmful, by far, are ethyl alcohol and potato spirit ten times rectified, which is nothing more nor less than ethyl spirit, almost pure. Then come the relatively impure alcohols of beets, grain, potatoes, etc.

It will be remembered that the hog which got no alcohol, succumbed to a pulmonary affection, contracted in the rigorous winter of 1879-1880, and which proved to be a veritable sclerosis of the lungs.

The hogs to which we gave absinthe and the tincture of absinthe, presented an interesting series of phenomena. Unlike those which were nourished on food containing alcohol, they manifested during their intoxication, a certain excitation. Trembling was not more marked in these animals than in some of the alcoholized subjects, but they presented contracture of the limbs, and a quite curious hyperæsthesia of the skin. It sufficed, in fact, to touch lightly some part of the cutaneous surface to have spasmodic contraction ensue in the muscles of the extremities. Two of the hogs of the second series had convulsive seizures, which seemed to be of an epileptiform character,

In fine, to complete the detail of experiments which have cost us so much in money, and about three years of careful observation, we observe:

1. That the alcohols, administered in a slow and continuous manner, determine in the hog, at the end of a certain time, anatomical lesions, which consist in congestions and inflammations of the digestive tube, and of the liver, without at the same time attaining to that degree of interstitial hepatitis which is noted in hard drinkers in human kind; in congestion of the pulmonary parenchyma, which may go as far as apoplectic extravasations; in atheromatous degeneration of the large vessels, and especially of the aorta, and finally, in sanguineous effusions into the substance of the muscles, and in the cellular tissue.

2. That these lesions, inappreciable at the end of thirty months in cases where ethyl alcohol was given, and alcohols having other origin than vinous fermentation, but which had been thoroughly rectified, are very conspicuous in subjects to which have been administered crude spirits, whether from beets, grain or potatoes.

3. That preparations of absinthe are especially baneful in their effects on the nervous system:

These results, considering the time and pains we spent, may seem inconsiderable. We think, nevertheless, that they deserve to go on record, for they strikingly confirm our first experiments, and enable us to affirm that the disorders observed in man as the sequel of alcoholism, are really due to the slow and progressive absorption of the poison to which he surrenders himself every day. We hope, therefore, that these new experiments will find a welcome with all who are interested in this great social question of the times.

On the Importance of Using Pure Liquors in Medicine: the Adulterations of Liquors: How to Obtain Pure Liquors.

By E. P. Hurd, M. D., Newburyport, Mass.

WHAT I have to say under this rather long heading is designed to supplement my article on alcohol in the June number of the Therapeutic Gazette, also to be a sort of commentary on the "Experimental Researches on Chronic Alcoholic Poisoning," by Drs. Dujardin-Beaumetz and Audigé, in the same journal for July and August.

1. The Importance of Using Pure Liquors in Medicine.

I use the word *medicine* in its general sense, to indicate everything that pertains to the preservation of health and the cure of disease. Alcoholic spirits are employed medicinally as stimulant, tonic, and supporting agents, sometimes also for a soothing and anodyne effect. It has from time immemorial been a *custom* for the feeble and the aged, those who are obliged to undergo exhausting hardships, severe nervous and mental strain, or expose themselves to rigorous weather, or other depressing influences, to resort to alcoholic stimulants for the preservation of health; in fact the moderate use of ardent spirits under these circumstances, is sanctioned by the consensus of enlightened medical men.

What kinds of alcoholic liquors best serve the purposes of the tonic medication? What kinds possess the maximum of healthy stimulant action, with the minimum of irritant or narcotic action? What kinds are the least deleterious in their after-effects on the tissues and on the physiological functions? In other words, what kinds are the least toxic and the safest? A very wide experience has proved that the least noxious of the intoxicating beverages, are those which approach the nearest to the matured products of vinous fermentation. Organic chemistry has taught

us that the alcohol which distinguishes vinous fermentation and vinous distillation is the ethylic—C^2H^6O. It has been abundantly shown that while a certain moderate quantity of diluted ethyl spirits may be borne by the human organism, not only with impunity, but often with the happiest physiological results, (bear in mind that I am speaking of a *moderate*, not of an *excessive* use), the ingestion of even inconsiderable quantities of the other alcohols, (amyl, methyl, propyl, etc.) is attended with results which are always pathological, and which are often most deplorable. By the term *pure liquors* then is, by common consent, understood such liquors as are free from alcohols other than ethylic, also from noxious alcoholic derivatives such as aldehyde, as well as from deleterious artificial adulterations.

The experiments of Dujardin-Beaumetz have demonstrated the exceeding noxiousness of all the higher atomic alcohols, as compared with ethyl alcohol, as also the powerfully toxic nature of the alcoholic derivatives, acetic aldehyde, acetic ether and acetone. This was shown by the results of acute poisoning with all these substances in the state of purity, and in the state of dilution, and by the results of chronic poisoning (recorded in this and the previous number of the GAZETTE) which seem to prove the relative innocuousness of rectified wine, grain, beet or potato spirits, as contrasted with crude spirits that have not undergone rectification.

It is much to be desired that a similar series of experiments might be undertaken in this country,* in order that physicians may better know the quality of the liquors which they are in the habit of prescribing.

II. THE ADULTERATIONS OF LIQUORS.

The adulterations of liquors are natural and factitious.

The natural adulterations are such as are generated during the ordinary process of fermentation; these, to a greater or less extent, pass over with ethyl alcohol during distillation. Not to mention certain essential oils and acids, which give flavor or "bouquet" to distilled spirits, and which, in the proportions in which they exist, are probably not deleterious, the principal adulterations with which we are concerned, as being especially toxic and dangerous, are the higher alcohols before mentioned, also acetic and other aldehydes. (It is not yet decided whether the ethers, acetic, butyric and œnanthylic, ever impregnate the distillate in sufficient quantities to exert any special toxic action,)†

Practically, then, under this head, we have to do with amyl, butyl, propyl alcohols (which, with ethyl alcohol, are the alcohols of fermentation), and aldehyde. These noxious substances are frequent contaminations of wine, beer and cider, as well as of the distilled liquors. It is well known, moreover, that in the marc of grapes that have undergone fermentation, there is a peculiar essential oil (cognac oil) furnished by the stones, and which contains beside fusel oil, œnanthylic, caprylic and caproic alcohols, all highly poisonous, as the experiments of Beaumetz show.* In the July number of this journal a table is given, indicating the toxic power of these alcohols as compared with ethyl alcohol.

For details respecting these eminently toxic alcohols, I shall have to refer the reader to any good work on organic chemistry, such as Witthaus' Medical Chemistry, premising that the circumstances under which they are generated during the fermentation of glucose are not well understood. Berthelot points out (*vide* Schutzenberger on Fermentation, page 31) that the production of all these homologues of ordinary alcohol at the expense of sugar, may be formulated by the general equation:

$$\frac{N}{4}\left\{C^6\,H^{12}\,O^6\right\} = C_n\,H^{2n} + O^2 + \frac{N}{2}CO^2 + \frac{N-2}{2}\,H^2\,O.$$

The most common, and certainly the most deleterious of these alcohols, is fusel oil, or potato spirit, $C_5\,H_{11}\,OH$, which, existing in very feeble proportion, if at all, in good wine or brandy (according to Liebig, it is principally formed in the fermentation of neutral or alkaline liquids, while it never occurs in acidulous fermenting fluids, which contain tartaric, racemic or citric acids), is an almost constant ingredient of all crude liquors made from grain, potatoes, beets or molasses, also of the cheap, inferior brandy obtained from the marc of grapes. Isidore Pierre, in a series of painstaking researches, detected fusel oil, along with other of the fiery alcohols above mentioned, in minute quantities in all the ordinary commercial alcohols, especially in beet spirit, rum and whiskey. In fact, this amyl alcohol may be said to be the plague of the distiller and the *bête noir* of the spirit consumer, and the removal of it is one principal object of all processes of purification.

Fusel oil (amyl alcohol) is produced during the fermentation of glucose in greater abundance than any alcohol except ethylic; it is a colorless, oily liquid, with acrid taste and odor *sui generis*, which is provocative of nausea and headache; it boils at 270° F., and its sp. gr. is, 818; it dissolves in alcohol and ether, but not in water. Its high boiling point would seem to be a guaranty that it would not be likely to distill over at the same temperature as ethyl spirit, and, in fact, it is in great part left behind with the residual oily material in the still. A small portion, however, passes over, in intimate union with the ethyl alcohol.

Amyl alcohol is produced in greatest abundance in the manufacture of potato whiskey. Despite all the pains which may be taken in the management of the distillation, this fiery spirit will continue to be contaminated with more or less fusel oil, and not even filtration through freshly-burned wood charcoal, a powerful means of *defusalation*, will altogether free potato whiskey from the baneful impregnation.

Beaumetz's experiments showed that it took only one gramme and a half of diluted amyl alcohol per kilogramme, to kill his animals in the course of 24 hours, and that the toxic power of potato whisky was superior to that of all other products of commerce on which they directed their researches.

*That is, if any one has the hardihood to defy the Society for Prevention of Cruelty to Animals.

†It is the opinion of Albertoni and Sussana (cited by Beaumetz) that these ethers are not poisonous. They conclude from their experiments that the phenomena of intoxication and anæsthesia determined by the ingestion of fermented beverages, are in no important sense attributable to the ethers which those beverages contain. Beaumetz, on the contrary, found acetic ether manifestly toxic, (Recherches Experimentales sur la Puissain toxique des alcools, page 190.

*Recherches experimentales, etc., page 130.

Nations that make the most free use of potato whiskey (and we may instance the Scandinavians) are the most cursed with drunkenness, and it would be well if this kind of spirit were utterly banished from civilized society.

In the distillation of whisky from grain, and rum from molasses, care is taken by the manufacturers to exclude fusel oil by taking advantage of the differance between the volatilization point of this substance and ethyl alcohol; the first portions and the last portions are rejected, and the intermediate distillate, which marks a certain standard of proof by the meter, is alone offered to commerce. The proprietors of these distilleries are, I believe, generally honorable and conscientious men, who have every interest and inducement to give a good article of spirits to the public. Besides they are under such thorough supervision by the Excise department, that even the keys to their butts are in the possession of government officers, and they cannot draw off a gallon of the product of their stills till the requisite official authority has been obtained; so close, in fact, is the surveillance that it would be a difficult matter to perpetrate fraud by in any way altering the quality of the liquors which are sold. And yet all these liquors—rye, bourbon, molasses-rum—when new are too impure to be used in medicine. Fusel oil, and other deleterious alcohols will come over in trifling amount, despite all pains; and this by virtue of the tenacity of adhesion of their molecules to the molecules of ethyl alcohol. I emphasize the word *new* in the previous sentence, for what art cannot do in the process of distillation, nature seems capable of doing by the "mellowing" effect of time; certain it is that these liquors, if allowed to "ripen" in casks, become in time *defuselated* by a process not well understood.

The experiments of Pierre* before alluded to, and those of Dujardin-Beaumetz teach us, as medical men, that we cannot be too careful as to the quality of liquors which we prescribe for the sick; the first by proving the impurity of the commercial liquors, the second by showing the relative deleteriousness of liquors that have not undergone a special rectification.

I have purposely ignored certain adulterations† known to exist in all distilled and fermented liquors except where endeavors have been made by special process to eliminate everything but ethyl alcohol. Such adulterations give color, *bouquet*, character to the spirit and are not regarded as unwholesome; in fact, many of these extraneous ingredients temper, moderate, or in some way qualify the action of the spirit on the economy, so that a better effect is obtained than if diluted ethyl spirit alone were administered. A whole chapter might be written on these *beneficial* components of intoxicating beverages. Thus wine contains besides ethyl alcohol the following ingredients in greater or less proportion: Water, extractive mucilaginous matter, carbonic, acetic, tannic, tartaric and malic acids, bitartrate of potassa, tartrates of lime, alumina and iron, chlorides of sodium, potassium, calcium and magnesium, sulphates of potassa and lime, coloring matter, grape sugar, œnanthic ether and œnanthic acid. Almost as long a list of ingredients might be cited as belonging to ale; and cider, rum, gin, brandy, etc., have special component principles which time obliges me to pass over, as being scarcely of the nature of impurities, such as are under consideration. Old cider is considered by many a New Englander to be especially salubrious, but my own experience would lead me to regard it as especially noxious* from the presence of a large amount of acetic acid and amyl spirits; under proper modes of preparation, however, in which pains have been taken to limit the acetous fermentation, and separate fusel oil, cider is as harmless as any dilute alcoholic spirit. If made as it is in France, cider of a very excellent quality is obtained. The fermented liquid is strained and racked off into casks containing the fumes of burning sulphur. This stops all further fermentation, especially the acetic, which depends on the development of the *mycoderma aceti;* much of the sugar remains undecomposed. The cider is afterwards bottled.

The last of the natural adulterations which I shall notice is aldehyde, having particular reference to acetic aldehyde, as being the one with which we are chiefly concerned. The aldehydes are bodies derived from alcohol by elimination of one or more molecules of hydrogen, (H_2) and they hold an intermediate position between the alcohols and acids; $C_2 H_6 O = C_2 H_4 O + H_2$. (The formula will be more intelligible if we suppose the intervention of 1 eq. of oxygen; we shall then have one molecule of acetic aldehyde and one molecule of water, thus: $C_2 H_6 O = C_2 H_4 O + H_2 O$.) Acetic aldehyde is a very poisonous substance. From Beaumetz's table (*vide* July number of the GAZETTE,) we find that 1 gramme, 20 per kilogramme of the weight of the animal experimented on, caused death in the space of twenty-four hours. In numerous instances in which the French physiologists caused death by the subcutaneous injection of aldehyde, the toxic phenomena were violent convulsions, followed by stiffness of the members, great agitation and distress, irregularity of the heart's action and respiration, with speedy suspension of the latter functions.

It is not known how far the ordinary liquors of commerce are contaminated by this poisonous principle. The usual tests are not sufficiently delicate or satisfactory to positively determine its presence, when existing in minute quantity. It is, however, believed by good chemists to be a frequent adulteration of liquors, and if the nitrate of silver test can be relied on, almost any sample of commercial alcohol is likely to show traces of aldehyde.† From its relationship to alcohol, it is easy to see how, under the influence of any oxidizing agent, aldehyde may be formed. It is especially prone to appear as a constituent of the first distillate of beet whiskey, which is rendered thereby exceedingly toxic. Aldehyde is a colorless oily liquid, with suffocating odor, and density 0.79. It is very soluble in water, alcohol, and ether. It readily oxidizes when exposed to the air, forming acetic acid, $C_2H_4O + O = C_2H_4O_2$.

*Isidore Pierre has the merit of showing that the rectifications to which alcoholic spirits are subjected at the manufactories do not completely free them from impurities, and it was by submitting new rum, whisky beet spirit, etc., to redistillations that he succeeding in extracting from such commercial liquors amyl, propyl and butyl alcohols in notable quantities. —Dujardin Beaumetz and Audigé, loc cit., page 271.

†The purposes of my argument have obliged me to use this term in a sense somewhat different from the ordinary sense.

*The experiments of Beaumetz on Acute Poisoning show that the toxic power of brandy made from cider is superior to that made from wine.

†Dujardin-Beaumetz Lecons de Clinique Therapeutique, t. II. page 345.

II. ARTIFICIAL ADULTERATIONS (SOPHISTICATIONS).

As if nature had not made our spirituous liquors in their crude state bad enough, human art, impelled by cupidity and avarice, has found a way to make them ten-fold worse. Pure liquors being always costly, requiring for their production time, patience, and painstaking, unscrupulous dealers have from remote antiquity, sought by factitious imitations to obtain an inordinate profit at the expense of a cheated public. According to Strumph (a German authority) "The difficulty of obtaining pure, unadulterated wine for domestic and even medicinal purposes, is, well known, even in Germany, for the wine trade is with few exceptions, in the hands of avaricious usurers, knavish dealers, and greedy landlords, who have more regard for the gratification of their own avarice, than for the health and lives of men."*

"It is easier," says Stillè, "to obtain pure musk or genuine cinchona bark, than faultless wine. Under such circumstances it is a precarious matter to attempt the cure of our patients with a liquid which is hardly ever what it ought to be." Stillé further quotes Pliny, as saying of the wines of his time, "Our very princes do not drink pure wine. To such a pitch has villainy arrived that one can buy nothing more than the name of a vintage. From the very wine-vat all of it is adulterated. And so, marvelous to tell, we may say of wine, the poorer, the purer."†

Why is it that physicians in this country are so cautious in prescribing *brandy* for the sick, only that good brandy is so difficult of obtention, dangerous adulterations being so rife? Many an unscrupulous dealer in these strong liquors has in his private bureau certain "receipts," by which, out of relatively inexpensive materials, "good brandy" may be made. I have been favored with a few of these receipts; they are taken from a popular manual entitled, "The French Wine and Liquor Manufacturer, being a clear and comprehensive treatise on the manufacture and imitation of brandy, rum, gin, and whisky. By John Rack."

"To make brandy without foreign liquors—to 100 gallons pure spirits, 5 to 10 over proof, add: ¾ oz. oil cognac; ½ pound black tea: ¼ ounce oil prune kernels; ¼ gallon sugar syrup; 2 ounces acetic ether; color with sugar coloring."

Oil of cognac, as before stated, is a refuse product of distillation, and is obtained by distilling the marc of grapes, or wine lees, at a very high temperature. It consists almost exclusively of fusel oil.

Another receipt is as follows:

"IMITATION FRENCH BRANDY.

To 40 gallons French proof spirit, add: 1 quart tincture orris root; 1 dr. oil cognac; 1 pint vanilla flavoring; 12 drops bitter almond oil; ½ gallon best sherry wine; 1 pint vinegar; 1 pound glycerine; color with caramel."

Here is a receipt for making bourbon whsiky :

"Take of proof spirit 40 gallons, add: ½ gallon peach flavoring; ¼ gallon hickory-nut flavoring; 1 gallon highly-flavored brandy; 1 pint wine vinegar; 1 pint white glycerine; 12 drops oil cognac; color with caramel.

Hosts of similar receipts might be given, and there is no doubt that liquors made in conformity to them are drunk by multitudes in our land. Verily, over the door of every restaurant or liquor shop where such abominations are retailed, should be placed in bold letters, "Who enters here leaves hope behind!" or the striking words of St. Paul, with the intent of literal application, "Let us eat and drink, for to-morrow we die!"

It will not do to accept the dictums of certain temperance lecturers, that venders of ardent spirits generally deal in such sophistications. There are high-minded and honorable men even in the liquor business. These men have had an experience which tells them what pure liquors are and where they can be bought, and they have a pride in being able to sell a good article. In every large town or city the physician, seeking pure spirits for medicinal purposes, knows whom he can trust, and need seldom be disappointed. The experienced dealer obtains his supply from the United States' Bonded Warehouse, buying a brand of a certain known strength and age, or he has direct dealings with the wine manufacturer or distiller, who has no object in defrauding, and whose every interest is in sustaining the reputation of his house, and furnishing goods of a certain standard of excellence. It is the small retail dealer that is more to be dreaded; the grocer who must eke out a scanty income by selling strong drink at an enormous profit, and who cannot afford to buy the best in the market; the brazen faced "rum-seller" who has all kinds and qualities of intoxicants—good, bad, and indifferent—who has a callous conscience, and who does not hesitate to sell a cheap and "doctored" imitation for the finest old burgundy; even the impecunious apothecary, who, grown desperate in the fierce struggle for gain, buys the cheapest drugs and liquors of an inferior quality; his knowledge has taught him that the latte-can be made to yield him more profit by further dilutr ing them with water and then adding a little alcohol.

It is a fact there is a demand for cheap liquors which dealers are bound to meet. Old tipplers claim their full glass of cognac, for which they are not willing to pay but a dime. There is no encouragement to him who would make a specialty of pure liquors. The law recognizes no difference in the business, as far as the quality of beverages is concerned; excellence is no merit and brings no premium. Hence "middle men" adulterate wines by mixing different grades. They fortify weak wines by adding alcohol. They color wines by foreign substances, such as indigo, fuchsine, and logwood. They make imitations of wines by substances not produced from the grape. They tease out of the marc of grapes a little more brandy, by adding the washings of wine bottles, the scrapings of wine casks and vats, spoiled raisins, water and redistilling. Occasionally grains of paradise are added to give a fictitious strength, and catechu to give astringency. And so it would

*Stillé Therapeutics and Materia Medica, Vol. I. page 619.
†Stillé Loc. Cit. Some of the falsifications of wines as given by Stillé, may be of interest. Wines are diluted with water, and some specimens are fraudulent substitutions of cider or perry for the juice of the grape. Inferior qualities are made saleable by the addition of a small proportion of a better description. Admixtures of various sorts ingeniously counterfeit the finer qualities; alcohol is added to these wines. Sour wines are sweetened with honey, sugar or raisins, and pale ones are colored with burnt sugar. Acidulous wines are neutralized by alkalies or by lime. Acetate of lead is sometimes fraudulently mixed with wines to give them a certain astringency. In an English manual for wine-dealers occurs the following recipe, which has just been stigmatized as infernal: "To keep wine from turning sour: Put in the casks two pounds, three ounces of small shot." Red wines are often manufactured out of alcoholic dilutions colored by logwood, rhatany, beets, litmus, etc. Astringency is given them by alum, oak or willow bark.

be easy to show how factitious and low-grade whisky, rum, gin, etc., are put on the market.

III. GOOD LIQUORS: HOW OBTAINED.

From what has been just said, it is apparent that the physician cannot be too careful as to the source and quality of the liquors which he prescribes for the sick. If he desires a pure stimulant, he does not want a preparation in which the helpful effects of ethyl alcohol may be spoiled by fusel oil. Better order diluted "high wines" of some reliable chemist, (ethyl alcohol and water, a form of administration, by the way, which has the sanction of high authorities,* and is a favorite way of giving alcohol at some hospitals) than trust the questionable mixtures (obtained from the nearest "Exchange,") whose very taste and smell proclaim it to be counterfeit. An experience of 20 years has convinced me that it will not often do to trust to the judgment of our patrons in the selection of liquors which we prescribe, and I have had the hardihood to fling many a bottle out of the window, warranted to be the "best Bourbon" or the "best Cognac," but which seemed to me better adapted to have a speedy escharotic or vesicant effect than a salutary stimulant action.

You have, we will suppose, a patient who is laboring under the ataxia of severe, protracted typhoid fever; there is some delirium and subsultus tendinum and even a tendency to carphologia. The case is an unfavorable one, but by no means a hopeless one; we have seen patients as sick recover by good nursing, good food and the help of a little pure alcoholic liquor—here the ethyl spirit sometimes works like a charm, sustaining and soothing in a most marked manner; but if you give a fiery draught, redolent with amyl and the kindred noxious alcohols, you will infallibly kill your patient in the course of 24 hours. I have no doubt that I have seen life saved by the judicious administration of a little vinous alcohol, and I am not so sure that I have not seen valuable lives lost which might have been saved but for fusel oil!

In selecting our alcohols we must be guided by the same principles of common sense that govern us in the selection of our other medicines. The fact that there exists a counterfeit is no proof of the absence of the genuine. There are supposititious quinines in the market, and the same may be said of almost every valuable drug, but the physician or apothecary is inexcusable who does not provide himself with good medicines. Great pharmaceutical houses, with chemists on their staff, vie with each other in furnishing pure drugs. So with regard to alcoholic liquors. It may be a difficult matter to obtain good French or Spanish wines, but I am told by honorable men who are in the business, that many of these foreign wine-merchants, with whom they have habitual dealings, are honest men. If they order a choice brand, they are sure to get it. Besides, the importance of California as a vine-growing country is augmenting every year. Both wines and brandies of an exceptional quality can be obtained directly from reputable manufacturers in that state. With regard to the article of whisky, there are about three hundred distilleries in the west—Kentucky alone boasts of 215. Massachusetts has ten, including the rum distilleries. All these are under active governmental supervision, and have enterprising and honorable men at their head. In fact, as far as the manufacturer on a large scale is concerned, there is no temptation whatever to dishonesty, and it is only the "middle men," the third and fourth rate wholesale or retail dealers, who find it to their interest to sophisticate distilled liquors and cheat the public.

But manufacturers do not guarantee that their liquors shall be absolutely pure in the sense in which we understand purity, and the recent products of the still are hardly fit for medicinal use. It is difficult to separate the higher alcohols by fractional distillation, and some subsequent process of rectification is desirable. Here nature (as it were), intervenes and says, "give me time and I will do it." In other words liquors acquire by age a "mellowing" which largely, if not completely, frees them of impurities. They become more wholesome by age, and somewhat weaker in alcohol. It is, I believe, one condition of such ripening that the liquors shall be kept in wooden casks, which lose a small fraction of their contents by slow evaporation. What particular change takes place in such liquors I do not know. The supposition that the fusel oil is "oxidized" to ethyl alcohol is inadmissible. Such oxidation is impossible. Amyl alcohol, under oxidizing influences forms valerianic acid $= C^5H^{12}O + O = C^5H^{10}O, H^2O$.

Undoubtedly the presence of valerianic acid in whisky or brandy, would be less objectionable than the molecular equivalent of fusel oil, but we await proof that this change takes place. Whether or no the wood of the casks acts as a filter to the amyl alcohol, separating it from the ethyl as does charcoal, is equally a matter of speculation. There is no evidence that the fusel oil evaporates through the wood. It is more probable that the process of mellowing is one in which there is, under the influence of warmth and oxygen, a gradual breaking up of the relatively unstable higher alcohols, into certain innocuous aromatic ethers and acids; aldehyde becomes converted into carbonic acid and water. And even this, in the absence of a dehydrating body is inexplicable, for the molecule of alcohol does not part with a portion of its water to form ether, unless it be to yield it up to some substance having a greater affinity than itself for water. It is certain, however, that chemistry has not yet given us formulæ fully to explain the transformations. The fact remains that liquors do mellow, become finer, smoother, purer, with age. Every experienced dealer and physician knows this. You take care (or ought to) to order an old spirit when you prescribe for the sick, and the age is often the only guarantee of goodness. No spirit is fit to drink till it is at least three years old, and from antiquity the impression has prevailed that the older the better.

> "Est mihi nonam superantis annum
> Plenus Albani Cadus."
> —Horace Carm. xi. Lib. iv.
>
> "I have laid in a cask of Albanian wine,
> Which nine mellow summers have ripened and more."
> —Martin's translation.

I am not aware that more than one great attempt has anywhere been made to imitate and accelerate the process of nature in the ripening of liquors. The Cushing process enterprise, in Boston, seems, financially at least, to have been a success. It fact, the company claims more than to imitate nature's

*Thus the "potion alcoolique de Gubler" is made as follows: Take of alcohol at 85°, water and syrup, of each equal parts. Mix, and give a tablespoonful as often as may be required.

method of purification, as will be seen by the following statement from a pamphlet sent to every physician in the land:

"The Cushing process consists of placing old, mellow whiskey, brandy, gin or rum, *which has received all the benefits which age can impart to it*, in air-tight metal tanks, with pipes attached. The spirit is then moderately heated by steam coils; next, air, washed and purified, is, by means of powerful air-pumps, forced in minute streams through perforated pipes, throughout the volume of liquor with such force as to keep it violently agitated. This is continued from six to eight days, the temperature being kept at a degree by which the poisonous ethers are vaporized, which are constantly being expelled through pipes into the open air. The inhalation of a particle of this poisonous vapor will cause the most intense headache that was ever produced by intoxication. When the 'process' is completed, repeated analyses by our most eminent chemists fail to discover even a trace of the poisonous substances."

If the "Cushing process" does all this, it certainly deserves a gratuitous advertisement in the THERAPEUTIC GAZETTE; the problem of rectification is now solved, for no other system of rectification can ever be necessary. If, morever, such thorough aeration as is above described can quite *defuselate* "old, mellow whiskey," etc., it ought to have the same effect on new. It is, however, a significant fact that the company selects spirit that is old, and has already undergone the natural process of rectification.

While having a great deal of respect for the quality of the liquors furnished by this company (and I, in fact, seldom prescribe any other), I do not feel satisfied that their "process" effects much change in the liquors on which they operate. They, undoubtedly, buy good old liquors, the best in the market, of reliable manufacturers. *This is the main thing.* But before we accept their published statements as true, it should be shown: (1) That pumping air through a tank of alcoholic liquor for several successive days will free such liquor of fusel oil, aldehydes, etc. They do not claim that they have proved this. It can only be proved by actual experiment on a mixture of fusel oil and other spirits. This is an experiment which can be easily performed in a chemist's laboratory, and which an excellent practical chemist, Dr. Lewis Howe, of Central University, Kentucky, has promised me that he will undertake shortly, with a subsequent full report of the result. (2) It should also be open to demonstration that the liquor which this company sends out is any better or "purer" than that which they receive from the manufactory. This I cannot find that they have substantiated, despite the encomiums of the well-known chemists who have endorsed the Cushing process system.

Awaiting, then, the definite proof that *churning* spirits or pumping air through them is certain to rectify them, I should still have more faith in the method carried on in some of the liquor refineries in the old world, where it is sought by successive redistillations (excess of acids being removed by lime), and by careful filtration through freshly-calcined wood charcoal to remove fusel oil, aldehyde, etc. I am ignorant whether such an establishment, guided by an enlightened chemistry, exists on this continent. Public sentiment, urged to a white heat on the subject of intoxicants, is not yet ready to support industries that recognize the utility of pure liquors.

As long as such ignorance is prevalent among the masses, and some among educated people, as finds expression in the last number of the *New York Independent*, (July 24th, 1884), we cannot hope for any great improvement in the way above indicated. Clear as it is to those who have given the matter serious consideration, that the evils resulting from the use of ardent spirits are far worse than they would be could adulterated spirits suppressed—could sophistications be stopped—and that a reform in the quality of our stimulating beverages would be a step towards social reform, the *Independent* thus comments on a recent review article: (We give the entire paragraph.)

"A somewhat amusing point is made by Dr. Dio Lewis in an article in *The North American Review*, on 'Prohibition and Persuasion.' He says:"

"'Prohibitionists miss their great opportunity in not prosecuting adulterations. An adulteration is a fraud; and a fraud is always a crime. Officers can go anywhere in search of a fraud, and all drinkers would cheer them on the attack. A vigorous prosecution of adulterations would paralyze the whole trade.'"

"That passage is as full of suggestions as an egg is of meat; and we pick up but two or three. Why should prohibitionists be in such haste to do what would make 'all drinkers cheer on their attack?' Are they in league with the drinkers to help them get comfortably drunk? Then, how would 'a vigorous prosecution of adulterations paralyze the whole trade?' It might the wine trade; but who imagines that pure lager beer, or whisky, or gin, or rum, or brandy could not be supplied easily enough in sufficient quantities, if adulterations were prevented? Kentucky would gladly take the whisky contract. That is what Kentucky raises corn for, to make pure whisky. Then, again, how would prohibitionists make anything by stopping the putting of water, or acid, or fusel oil into liquors? It is not these things that make the drink curse, but the pure, unadulterated whisky or other liquor itself. (sic) It is the genuine alcoholic liquor which is the destructive poison. (sic) When a man is trying to stop the free sale of corrosive sublimate, there is no sense in telling him that he makes a mistake in not trying to prevent the adulteration of the poison with salt-petre, or even Paris-green or arsenic. The adulteration makes the stuff no worse. (sic) It is as bad as it can be to begin with. (sic) Prohibit the pure liquor itself, and then you prohibit all the adulterations with it. If anybody has the notion that he can drink pure liquors any more safely than the adulterated, we prohibitionists have no interest in getting him his beverage pure."

If there be any meaning to facts which prove the comparative immunity from the worst evils of intemperance of regions where the principal intoxicant is the fermented juice of the grape,* if the carefully conducted experiments recorded in the last two numbers of the GAZETTE have taught any lesson, if, indeed, we have learned anything the past twenty-five years concerning the physiological action of the alcohols, the above statement of the *Independent* is a misconception of the whole subject, and contains positive untruths.

*Lunier, by a series of remarkable charts, has shown that the misdemeanors and crimes which result from the abuse of alcoholic beverages, are in direct relation with the usage of alcohols other than those furnished by wine. It is, in fact, in the departments where the vine is not cultivated, that we see alcoholism in its most deplorable manifestations, and if there do exceptionally happen cases of drunkenness in regions where the vine flourishes, this will general y be found due to the presence in those countries of manufactories of liquors other than those which are of vinous origin." (Beaumetz et Audigé, Recherches Experimentales, etc., page 302.)

Resorcin In Diseases of the Ear.

By C. W. Tangeman, M. D., Cincinnati, Ohio.*

RESORCIN is manufactured from a number of resins, and belongs to the class of remedies called phenols. It occurs in fine, colorless crystals, which are readily soluble in water, alcohol and ether. It has a peculiar sweet, mawkish taste, and when given internally it excites disgust. It can be given in quite large doses before toxic symptoms set in, and while it has been thoroughly investigated as to its physiological action in health and disease by Andeer, we will confine our attention simply to its effect when applied locally to some decomposing matter. As a disinfectant it is quite efficient, removing the odor from wounds that are bathed in a mass of putrid material. In a one-per-cent. solution it will arrest mold or decay. When the concentrations are increased, we enhance the power of the drug. In crystal form, when applied to a granulating mass, it is more efficient in its caustic action than the stick nitrate; besides, it causes less pain; in fact, its action is almost entirely painless, unless the surface is specially sensitive. A geat future has been prophesied for resorcin as an antiseptic in surgical dressings, but, for some unaccountable reason, the profession in general knew little about it until now. The fact that surgeons have, in the past few years, been overheaped with all kinds of new things called antiseptics, may have had the effect to cause some really good and efficient remedies to be put aside with the indifferent. And then, again, until the profession accepts the theory that all suppurative conditions, wherever found, are always dependent on a bacterial organism, not until then can we expect antiseptics to be selected with regard to their power to destroy germs. In otology it is not our object to multiply remedies, or make the treatment of these special diseases complex. On the contrary, simplicity is our aim, but it must rest on a scientific basis. We must show why we use a remedy, and also why one is not as good as another. Quinine is an efficient antipyretic, and, notwithstanding all that the most strenuous efforts have been made to produce a substitute, for reasons that are known to everyone. In purulent inflammation of the middle ear, boracic acids acts very nicely in the vast majority of cases, but occasionally we meet with cases where it appears to be inert, and we are compelled to have other resources to fall back on. Such a remedy we may find in resorcin.

It is not necessary here to go into the details of a description of the pathological condition of purulent inflammation of the middle ear. Text-books generally give enough information on that subject, that the application of this class of remedies can be understood. Having had charge of the entire ear department at the Medical College of Ohio, for the express purpose of making observations on new remedies, I found that not unfrequently there had accumulated quite a school of cases that seemed to make no progress under the use of ordinary remedies. So it was when I began the use of resorcin, I had a series of 15 cases that were suffering from a purulent discharge of the middle ear. All the simple remedies, such as cleansing the ear by the use of cotton, washing the ear and meatus with boracic acid, the use of absolute alcohol, bichloride of mercury in solution, etc., had been faithfully employed, in many instances for months, with no apparent results, until the above number had accumulated. This afforded an opportunity for a crucial test of some drug, and, in reality, it is the only way in which to test a remedy, since it is not at all seldom that a single cleansing or a few applications of an ordinary remedy, is sufficient to cure the case. I have also employed the remedy in cases as they apply at the clinic for relief, before any other remedy had been used, and often a single treatment was sufficient. When first using the drug, I did not know its action nor the strength in which to apply it; but, judging from the dose given internally sometimes, a dilution or weakening did not seem necessary. Therefore, after cleansing the ear thoroughly by means of absorbent cotton, the middle ear and meatus were completely filled with the pure resorcin. The moisture existing in the ear caused it to dissolve and spread over all the middle ear. In the appended cases the history of each case will be given minutely, so as to enable everyone to readily understand the physiological action, and also the class of cases in which the drug should be employed to secure the best results. Boracic acid is much more simple, and more acceptable to the patient, whenever it is sufficient to cure. To give an accurate history of a series of cases, a great deal of repetition becomes necessary, which I beg the reader to pardon.

Case 1. Charley Lewis, aged 10. Made application at the clinic for the relief of a running ear, one of the sequela of scarlet fever, which had existed for nearly three years. The ordinary plans of treatment had been gone through with, but the discharge did not cease. Boracic acid in powder, in a watery solution, and in alcohol, had been employed in succession. May 13 I commenced the use of resorcin. The membrana tympani of the right side was nearly gone; the lining of the middle ear was very much thickened. After cleansing the ear the meatus was completely packed with resorcin in powder form, and the patient discharged, to return on the following day.

May 14. The powder had all been dissolved; the discharge had increased very much in quantity, only that it had lost its odor. The walls of the meatus and the lining of the middle ear were quite sensitive, and somewhat reddened, but had caused no special pain, so the same treatment as on the day previous was repeated.

May 15. Amount of the discharge somewhat less, no odor, no pain, tubes were well opened, treatment repeated.

May 16. Discharge gradually diminished.

May 17. After cleansing the ear with cotton I found the entire meatus had been vesicated, and the mucous lining of the tympanic cavity was very much reddened, and quite sensitive. I changed the plan of treatment, since the resorcin in powder form was too violent in its action in that case; it had caused considerable pain, so I employed it in a 5-per-cent. salve on a pledget of cotton, and asked the patient to return on the following day.

May 18. Not so much pain, less discharge and the ear generally looked better, so instead of using

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the resorcin in the form of an ointment, I simply inserted a pledget of dry cotton. The ear was inflated as before.

May 19. Discharge had ceased entirely. The pain had left, but the parts had not quite recovered from the caustic action of the resorcin. They were sensitive to the touch.

May 20. The treatment was to inflate the ears and put a pledget of cotton in meatus. No discharge and no pain.

May 24. Discharged.

Case 2. John Waters, aged 38. Stove-moulder by trade. Was suffering from a purulent discharge from the ear for one year. The discharge was very profuse but there was a certain spot which was quite painful. The treatment at first consisted only in daily removing the pus and inflating the ear with Pollitzer's bag. Later other remedies were used, but without changing in the slightest the course of the disease.

May 13. I began the use of resorcin. At the bottom of the meatus there was a slight fungous growth, which bled when touched. The membrane was perforated. Patient stated when making pressure with his hand against the auricle, in an upward direction, he could cause a slight flow of matter. He suffered considerable pain at night, and often became very dizzy during the day. The meatus was filled with the resorcin powder.

May 14. Patient had to remove the pledget of cotton. After the first treatment the discharge had increased very much; pain was quite marked, otherwise the symptoms remained the same. The ear was cleansed, and the above treatment repeated.

May 15. Discharge about the same in amount and consistency; no odor; severe irritation had been set up at the orifice of the meatus, which became red and had the appearance of being scalded. Continue treatment.

May. 16. No change in appearance or treatment.

May 17. Same.

May 18. Same.

May 19. The discharge had become more scanty; the ear was not so painful, and the vertigo seemed to be getting less from day to day. From now on the five-per-cent. ointment was used on cotton, which was pushed down into the meatus.

May 21. Discharge was growing less; no more pain nor dizziness. The eustachian tubes were patulous. The treatment was the same as on the day previous.

May 27. Up to this time there was so little change in the symptoms of the case, that they were not recorded specially, but at this point the dizziness became very annoying, without any apparent cause. The same treatment was kept up.

May 28. The patient is gradually getting worse. All the old symptoms are magnified. The fungous growth has disappeared. The tympanic cavity is perfectly smooth. Denuded bone cannot be detected by means of a probe, yet there must be some source of irritation that keeps up the whole chain of symptoms. The treatment with resorcin was kept up for a few days longer, but there was no change; it was therefore discontinued, and simple cleanliness and inflation practiced, and while I am speaking of the case I may as well say that the patient is still under my care and has not improved a particle.

Case 3. John Feided, aged 10, was suffering from a chronic discharge from the middle ear, which at one time involved the mastoid cells. He had been treated regularly for five months with no effect save to relieve him of the mastoid trouble. The flow of pus from the bottom of the meatus never ceased. As in the above cases all the remedies in general practice had been given a trial very persistently.

May 13. I put him on resorcin. The meatus was well filled with the powder. He complained of pain, which continued for a few minutes only.

May 14. Discharge has almost ceased. No pain complained of, but the auricle is quite sensitive to the touch. The same treatment was repeated.

May 20. Patient had not put in an appearance for a number of days. He was afraid of the pain. The discharge was very slight. No odor. The epithelial layer of the lining of the meatus came away in shreds, leaving the parts in a sensitive condition, so the treatment was changed to the ointment.

May 24. Discharge was thin and watery. Had nearly stopped. Put in a pledget of dry cotton to allow the sensitive meatus to recover.

May 26. Nearly well, though quite sensitive yet. Treatment consisted in inflating the ears and putting a little cotton in the meatus.

May 27. No discharge. Skin of meatus about normal.

May 28. No discharge; filled the meatus with absorbent cotton.

May 29. Patient was discharged as cured.

Case 4. Andy E , age 13. Made application at the clinic for the relief of discharge of matter coming from the middle ear. After continuing treatment for some time, he disappeared from my observation, though I knew he was not cured.

May 13. The patient put in an appearance again, and I at once began with the resorcin. The fundus was covered with a fungous mass, the membrane thickened and the discharge was extremely fœtid. The meatus was carefully filled with resorcin.

May 14. The discharge had increased to such an amount that it fairly ran from the meatus. Patient stated that the pain was quite severe until in the evening (almost 12 hours). The case was treated the same as before.

May 15. The discharge is lessened in amount, is devoid of smell, nor was there any pain during the night. The skin of the meatus and auricle was eroded; wherever the discharge of the previous day had touched the auricle it was quite red and sensitive. The utmost care was required to cleanse the meatus and tympanum about this time.

May 19. Patient had omitted coming for a few days; had almost frightened him away; the treatment was a little severe. The discharge has almost ceased; there is little or no pain. Ointment on cotton was now used.

May 20. There is very little suppuration, no pain. Put some ointment on cotton into the meatus after it was cleansed.

May 21. Discharge nearly ceased. Put some dry cotton into meatus to absorb whatever moisture might be there.

May 22. Same as the day previous.

May 24. The patient is almost well, but will keep him under observation for a few days yet.

May 26. The discharge has increased again. The meatus is quite sensitive yet. Put in a pledget of dry cotton.

May 28. The case had a better appearance again. The symptoms had nearly all disappeared.

May 29. The patient was discharged as cured.

Case 5. Clara Wesley, aged 5, is suffering from a suppuration of the middle ear, caused by measles when one year of age. The membrane is perforated and the discharge fœtid. The ear was cleansed with cotton, and the meatus filled with resorcin.

May 16. The discharge had increased very much, flowing from the meatus. The remedy had caused considerable pain.

May 17. The ear is very sensitive. The child cries when it is touched. Could not sleep on that side on account of pain, but the discharge was not fœtid. The meatus was again filled with resorcin.

May 21. The running from the ear is profuse but not offensive. It is quite yellow in color. The ear was cleansed and the meatus was filled with a mixture of equal parts of boracic acid and resorcin.

May 22. Discharge almost ceased; no pain; powder all dissolved. Small pledget of dry cotton was the only treatment.

May 27. Nearly cured. The ear was carefully cleansed and the meatus filled with dry cotton.

May 29. Entirely cured. Called a few days later, but was sent home perfectly relieved.

Case 6. Carrie B., aged 26. Had suffered from an attack of chronic middle-ear suppuration for a number of years, which was due to measles. The discharge had not been large in amount at any time, but had never entirely stopped. Though the ordinary treatment had been faithfully carried out for weeks, the membrane was almost entirely destroyed, and the tympanic cavity was filled with a granular mass. After cleansing and inflating the ear, the meatus was filled with resorcin.

May 16. The discharge had increased in amount. There was no pain or fetor. Cleansed the ear well, and put only a small portion of the powder into the meatus, covered with a pledget of cotton.

May 17. The discharge, which was colored black, was very scanty, but was not fœtid. No complaint of pain. Treatment same as the day previous.

May 19. Discharge very slight. No pain; no odor. Continued the treatment by using the ointment.

May 21. Very little moisture; only two pledgets of cotton soaked; put in boracic acid and resorcin in equal parts.

May 25. Nearly well. Meatus is not sensitive. Treatment the same.

May 27. No discharge. Inflated the ear, and put in a pledget of dry cotton.

May 29. The patient sent home as cured.

Case 7. Willie Chandler, aged 5. Applied for the relief of a suppurative middle-ear trouble, and after a course of treatment covering three months, I put him on resorcin in powder.

May 16. The ear was cleansed and inflated, and the meatus filled with resorcin.

May 21. Patient had been absent for some time. The discharge had increased in amount; the ear became sore; the child was frightened, it seemed, as well as the mother, so they remained away. I cleansed the ear, which was full of pus, but fœtid, and then filled the meatus with boracic acid and resorcin.

May 26. Ear filled with pus. Treated same as before.

May 28. Discharge had actually increased. This time the ointment was employed.

June 3. Patient comes so irregularly that the time consumed in treatment is actually thrown away; therefore patient was sent off.

Case 8. Emma McGrof, aged 2. Has always been troubled with a discharge from the ear, according to the nurse. The ear was cleansed, and the resorcin ointment put on a pledget of cotton, and pushed down into the meatus.

On the following day, May 24, discharge had ceased entirely. Cleansed the ear, and put in some dry cotton.

May 25. Only the smallest bit of pus. Treatment the same as the day previous.

May 26. Discharged as cured.

Case 9. Mattie Williamson, aged 24. Applied for the relief of a chronic and incurable discharge of pus from the ear.

May 26. Treated both ears with the resorcin powder, but she never returned.

The following few cases had never been treated before entering my charge, and I employed the resorcin at once:

Case 10. Peter K., aged 55. Suffering from an acute otitis media with a profuse discharge. I cleansed the ears; found both membranes ruptured; the ears were filled with resorcin.

May 23. Nearly cured, there being but little or no discharge. Put a pledget of dry cotton in the meatus.

May 24. Quite severe pain during the night, which was attributed to the application, but the discharge had nearly ceased.

May 27. Discharge increased again, but only lasted a day, for he was discharged on the next day as cured.

Case 11. Martha G., aged 4. Made application, May 23, for the relief of a most profuse discharge from the meatus. The inflammation also extended to the auricle. In this case the ointment was employed from the beginning.

May 24. Discharge had nearly ceased; inflammation had subsided very much. The same treatment was repeated, and on the following day the patient was discharged as cured.

Where we claim, if anywhere, that resorcin has superior qualities, is in old, chronic cases. It may seem strange to some of the readers of this article that in all of the cases the aim has only been to stop the discharge. Many patients really apply only for the relief of this one symptom. It is specially obnoxious, but at the same time these cases, all of them, suffer from an impairment of hearing, but since that seems of little consequence to them, and I was testing the qualities of a drug, therefore in this report there is no mention made of the hearing power before and after treatment.

I can sum up in a few words my conclusions with the resorcin in diseases of the ear, of a suppurative nature:

1. Resorcin is the most efficient remedy that we possess.

2. If employed generally in all cases as they make application, it should be used in a 5% ointment (24 gr. to ℥ i), or mixed with boracic acid.

3. It causes considerable pain when used pure, and always increases the discharge the first day or two.

4. Many of my cases would have fared better had a mild preparation been used from the beginning, but I did not know the action exactly, consequently had to find the best method by experiment.

5. It seems far better to make one application only when the pure powder is used in an obstinate case, for it is many times sufficient, while when it is used more frequently we cause too much irritation.

393 Elm St.

Alligator Pear.

By C. W. Tangeman, M. D., Cincinnati, Ohio.

IT MAY not be amiss to call the attention of the profession to the drug introduced by Dr. Froehling, and reported in the Gazette of November 1881. Through the kindness of Parke, Davis & Co., I received two pounds of the fluid extract to be used at the clinic of the Ohio Medical College. While material for the observation of any new remedy is plenty, the application, clinically, of alligator pear could not be made by myself, so I submitted the samples to the medical department, requesting that a report be sent me, if any results could be obtained. In the case of a drug where there is no literature on the subject as to its application or therapeutic action, it requires some time to come to any conclusions that will be of any value; therefore, in this report I only wish to call the attention of the general practitioner to a remedy that will serve him a good purpose when other remedies fail to give the desired result.

The fluid extract is prepared from the seeds of a fruit called alligator pear, which resembles our ordinary pear in shape; there are three varieties, of which the green is the best. Between the skin and the seed is a pulpy substance which is taken as a food by natives. The tree is cultivated in India and in tropical America; the natives of these countries use the seed steeped in rum as a cure for rheumatism. At this observation Dr. Froehling employed fluid extract, which he prepared from the seeds, in the instance of his own case when he was suffering from a severe neuralgia. It has long been known that counter-irritation has given relief in neuralgia and rheumatism, and I am inclined to think that this is the manner in which this fluid extract acts, yet in one case counter-irritants to vesication, had been tried, with no relief until alligator pear had been applied.

The fluid extract can be given internally in drachm doses. Its taste is pleasant and it has little or no odor of its own; it therefore differs from other irritants, which all have a pungent taste, while this is perfectly bland. The first case in which it was employed was in a woman of about 40, who had suffered considerably with neuralgia, and especially of the ovaries. All ordinary remedies had been given a trial, and since there was no apparent cause, alligator pear was given a trial, employed by first bathing the surface with warm water and making friction with a soft rag; then the remedy was applied with friction for ten to fifteen minutes and the surface finally covered with two or three thicknesses of flannel. In the course of 20 to 30 minutes a marked heat and drawing could be felt by the patient, after which the pain subsided. It, however, became necessary to repeat this same treatment for a few days, when the attack was cured. This plan of treatment is not permanently curative, but only relieves the impending attacks. The second case was in an old lady where the character was of an entirely different nature; the pains complained of were in the lumbar region as well as in the chest; in this instance the drug was only palliative; it would relieve the pain for the time being, but repeated attacks came on despite the use of alligator pear.

Now here are two cases that are benefited by a certain drug, while there were a number where the effects were nil. The true physiological action of the remedy is not known, nor can it well be determined unless, by observing its therapeutic effects, in clinical practice. Experimental physiology, or therapeutics cannot assist us very much where the action of a topical remedy is under consideration. Quite recently osmic acid, injected subcutaneously, has been recommended for the relief of neuralgias, no matter where the seat of pain is, but the results show that in a large proportion of cases this agent is absolutely inert, while in a large percentage of cases that are relieved, the action is only temporary and palliative. This goes only to prove that the best remedies do not cure all cases. It may be determined in the future that alligator pear is indicated in a certain class of cases, and my object is to stimulate the profession to clinical observation, and a submission of the result in order that the drug may claim a definite place in therapeutics or be discarded. There is only one thing that should not be lost sight of, and that is that an accurate diagnosis be made in cases where new remedies are about to be employed.

With reference to the anthelmintic action of this remedy, I think the assertion is fallacious, and I will give my reason as based on experiments made in my physiological laboratory: It is generally known that a species of tænia are almost constantly found in the intestines of some of the lower animals, for example, the dog. I, therefore, administered alligator pear, in the form of a fluid extract, to a dog, in one-ounce doses. When three doses had been given a cathartic was administered, but there was no tape worm expelled. The animal was now killed and the intestines opened to see if there were any entozoa present.

In one instance I found a species of tæniæ that were not disturbed by the anthelmintic, so-called, nor by the cathartic, which was given to expel the worms. By these experiments I satisfied myself that the effect, whenever there is any obtained, is from the administration of the cathartic. The statement generally, that the head of a tape-worm is found after the use of any remedy, must be accepted with a great deal of allowance; frequently since it is quite a small point to be found in a large mass of fæces, and when found it can only be positively determined under the microscope, whether it is the head or simply a small joint. The attachment of the worm in the intestines is peculiar and accounts for the difficulty with which it is sometimes expelled. I have

followed up the attenuated extremity of the worm, and found that the head had penetrated entirely through the mucous membrane of the intestine and had buried itself sometimes to the extent of one-half to three-fourths of an inch under the mucous layer. In many cases if traction is made, the frail segments give way and the head remains buried. The only manner in which I was able to remove them with hooklets and suckers complete, was to drop some irritant on the mucous membrane over the attached head; the best agent that I have found was anæsthetic ether. From these observations that I have made on animals, I am almost convinced that the tænia derives his sustenance from underneath the mucous membrane, where, by means of the suckers, he is firmly attached, and secure against agents simply passing over the mucous surface, unless they be very concentrated, and the only true anthelmintic is one that has an action other than local. This theory may be objected to on the grounds that the tænia of man and animals differ. True, ordinarily they do differ, but I have found the true, genuine tænia solium with all its characteristics, in a dog.

I hope the general practitioner, if he has access to this agent, will give it a thorough investigation and report his observations through the columns of the GAZETTE.

Treatment of Hæmorrhoids by Carbolic Injections.

BY J. R. KINNEY, M. D., MINNEAPOLIS, MINN.

IN THE March number of the GAZETTE, Dr. Girard, of Winchester, Tenn, states that "the use of carbolic acid, administered hypodermically, in the treatment of hæmorrhoids, had been seriously condemned by nearly all of the leading members of the profession," and he asks for the experience of those who have used it. Permit me to assure the Dr. that in suitable cases and with proper precautions, he has no need to fear either the reproaches of those who have stupidly blundered and miserably failed in their efforts in this direction, or the fearful dangers that beset this new method of treatment, including embolism, thrombus, sloughing, etc. There are many who have earned for themselves a reputation away above mediocrity, in the medical profession, who have often treated piles by hypodermic injections, and who do *not* condemn it, but who, on the contrary, have found it a most successful method, and one, too, that is followed by a far smaller percentage of suffering and danger than any other surgical treatment that has been tried. It is now, moreover, recommended by our standard authors. I am aware that the method has been condemned and discarded by some who have given too little attention to the details of the operation, and the after treatment, and by others because their minds were too shallow to grasp some of the simplest ideas laid down, away over on the primary pages of any elementary work on surgery.

Those who have performed surgical operations in the perineal region, to any extent, have all, doubtless, partaken, to a greater or less extent, of the bitter bread of disappointment, served up in the form of extensive burrowing of pus and sloughing of tissues, instead of rejoicing in the healing of those parts by first intention, so fondly hoped for, and so reasonably expected. The question of *why?* has often presented itself, and while the answer has been obvious in many instances, yet there have been cases in which the results remained unexplained and unexplainable. As a rule, however, a careful examination by a surgeon in possession of a small amount of common sense will reveal whether the patient is a fit subject for a surgical operation or not. This is all-important, and the first question to be decided. If the hæmorrhoidal tumors, whether internal or external, are the results of inflammation, deposits of lymph, solid all the way through, instead of being mere sinuses of blood, enlarged portions of the hæmorrhoidal veins, and the patient is in a proper condition for an operation, I should proceed at once to inject them with a ⅛, ¼ or ½ solution of carbolic acid. I generally use a solution consisting of ⅓ carbolic acid and ⅔ olive oil, and I usually inject two to five minims of this into each tumor, according to its size, injecting very slowly, and until the tumor around the needle presents a whitish or opalescent appearance. At first I inject only one small tumor, and if, at the end of a week, this has sloughed off and appears to be healing kindly, I inject two or three. I have sometimes been obliged to repeat the operation in large tumors. In cases where the tumors are mere sinuses filled with venous blood, good judgment and careful management is necessary. Some of these I would not attempt to treat in this way. But a large majority of even these may be injected, proper care being used. In all of these cases the bowels should be confined until the slough has passed off. In these cases of soft tumors, the bowels having been freely moved, the rectum should be tamponed solid with lint or absorbent cotton above the tumor. The blood should be pressed out of the tumor with the finger, and then the solution injected, the finger confining the tumor for five to ten minutes, in order to prevent the return of the blood until a coagulum has slowly formed large enough to be retained in the venous node by the tampon already there. The central portion of the tumor generally sloughs out in from three to five days, leaving a deep discharging ulcer, with ragged edges, which gradually contract and the whole heals up by granulation, when the patient is ready for another operation. The patient generally suffers but little pain, and, as a rule, is not confined to his bed or prevented from labor. Should sloughing occur, which is seldom the case, it should be treated according to indications and rules laid down in surgery for such lesions.

Dr. Bryant, in his Manual of Surgery, alludes to this treatment, and then dismisses it with a simple, sneering wave of the hand, in a manner unworthy the position he occupies as a progressive member of a profession whose watchword is progress.

Professor Andrews, of Chicago, who has probably had a greater experience in this particular treatment than any other surgeon in America, or, at least, than any other writer, says that, "In only seven cases out of 3,300 has death occurred, and this only when the remedy was made use of in the most reckless and ignorant manner. Such a result tends, there-

fore, to show that the injection method is as safe as any other, so far as life is concerned."

Dr. Kelsey, in his work on Diseases of the Rectum and Anus, says that, "The treatment of hæmorrhoids by injection of certain substances, chief of which is carbolic acid, may now, I believe, be accepted as a surgical procedure of a certain definite value, and one worthy of a place among the recognized means of cure at our command. Originating, as it did, among quacks, it has been looked upon with suspicion, and its adoption by the profession has been followed by the accidents which generally attend a new remedy before its applicability is fully understood, but this does not diminish its real value."

During the past two and a half years I have used the hypodermic treatment in over sixty cases of hæmorrhoids, and without a single serious accident; and, I repeat, that in cases proper for this method of treatment, proper care being used, no other method of treatment can show better results, nor as good, as to length of time required in effecting a radical cure, amount of pain inflicted, or percentage of serious results.

A Case of Rabies (?).

By J. A. Averill, M. D., Brainerd, Minnesota.

THE morning of the 28th of May, I was called to see what proved to be a most interesting but distressing case. I found Christina P. Howser, aged 11 years, with an attack of genuine tetanus. She had been under treatment five days previous to my being called. I ascertained that some days before the tetanic symptoms began to develop themselves, she had stepped upon a stub with her left foot, causing a punctured wound, quite slight, and which quickly healed. I, however, judged the wound to be the cause of the tetanus. I administered gelsemium lobelia and capsicum, and by the third evening the tetanus was subdued, with the exception of a slight constriction of the jaws. She was rigid from head to foot at the commencement of the treatment. The case improved until noon of the fifth day, when I was recalled, and found her at the bed-post throwing her right arm and foot, twisting the head in a spasmodic manner and complaining of severe pain in whole of right side. Prescribed a sedative treatment, and called again in the evening. Symptoms had increased in violence, with great thirst, pulse 120, temperature 100° F. Constant expectoration and great thirst, with spasmodic grasping of the cup used in drinking. There was a peculiar uncertainty in all her movements that, notwithstanding the absence of hydrophobia, aroused a suspicion of rabies in my mind. I questioned her parents and found that she had been bitten by a dog in Ohio, one year ago last April. The wound, but little more than a scratch, inflamed and was treated by a physician there. They moved to Brainerd, Minnesota, soon after, but the wound did not fully heal until four months had elapsed. The symptoms increased in violence. I placed her under 20 drop-doses of chlor-anodyne every thirty minutes with a half grain of morphine added to each alternate dose. I thus succeeded, after fourteen hours of the heroic treatment, in getting her to lie upon the bed. Kept the bowels open with senna and jalap, and gave cascara sagrada and berberis aquifolium three times a day. Symptoms kept increasing in violence, with a constant throwing of arms and limbs, expectoration, frothing at the mouth and talking. Sleep, under the continued treatment as above, was induced about fifteen minutes at a time, for perhaps three or four hours out of the twenty-four, and the symptoms as stated, recurring at each waking.

May 19th was the beginning of the end. The violence of her movements had begun slightly to abate. Suppuration followed each scratch and wound she inflicted upon herself, and they were legion in spite of all the precaution we could use, except the actual tying of her hands and feet. The morning of the 21st, at 8 A. M., the abatement of her violent symptoms being but slight until the last, she breathed her last, and for the first time in twenty-three days she was at rest. The dog that bit her was not supposed to have rabies, yet, on biting another child soon after, he was killed.

Was the case one of hydrophobia, in a modified form? She had complained of pain in her limb during the past winter. Did the tetanus develop and modify the rabies that had remained dormant in her system, and, perhaps, would never have shown itself had it not been developed by some other cause?

Ustilago Maidis, Viburnum Prunifolium, Normal Liquid Cannabis Indica.

By Conrad George, M. D., Ann Arbor, Mich.

AMONG the new remedies of value with which the Therapeutic Gazette has made me acquainted, I would mention corn ergot. I have used it since 1876, in cases in which uterine pains were too short and lacking of propulsive power, with gratifying success. I have found it invariably to produce strong, normal expulsive pains, with intermissions of from three to five minutes. During the intermission I find the uterus completely relaxed,—a condition so supremely necessary to the safety of the child. I have not lost a child from its administration. Of course, I invariably apply the forceps when the progress of the head is not commensurate with the severity of the pains.

With black-haw (viburnum prunifolium) I have had equally signal success in its direction—the prevention of threatening abortions. Thus, in one case I saved the life of a fine boy during the third month, when the mother had aborted three times previously at the same period of gestation. In another case it actually caused a "missed" abortion. In this case the mother, a primipara, was threatened with abortion in the third month. I prescribed the remedy and the pains and flow ceased. Six months later a dead fœtus, of about three months, was expelled. During the six months she suffered from various symptoms, at that time unrecognized as due to the retention of a dead fœtus. The fœtus was not decomposed; it looked more as if it had been preserved in alcohol. The symptoms observed were, invariably, attributed to a disturbed nervous system, the uterus itself being not at all disturbed, and an unrecognized constipation had caused the abdominal

deception. This was, indeed, a "missed" case in many respects.

The introduction of normal liquids marks an era in medicine. I find the dose as reliable as that of an alkaloid, cannabis indica, so notoriously uncertain, not excepted. I have now used the cannabis indica in two cases of menorrhagia with marked success. In the first case the hemorrhage had been so severe that other physicians had tamponed twice, and used hot and cold injections and stimulants. When I saw this case for the first time, it looked more like a post partum hæmorrhage than a menstrual period. The loss of blood was appalling. After this period was passed over, I made a thorough examination of the uterus, but found nothing abnormal. The organ was of usual size, free from pain, tumors, etc., and the mucous membrane was not at all inclined to bleed. At the next period I commenced with normal liquid cannabis indica, giving six to eight drops, and repeating the dose as the cerebral symptoms began to subside. My patient lost only an ordinarily large quantity of blood. The flow invariably lessened with the intensity of cerebral excitement. I intend to write a detailed report of this case.

Aletris Farinosa in Spermatorrhœa.

By R. L. Hinton, M. D., Prescott, Ark.

W æt 16, applied to me for treatment in Feb., 1883. He was an unfortunate victim of the habit of masturbation, as he frankly confessed, and also a victim of one of those confidential newspaper advertising quacks. He was weak, physically and mentally, gloomy and despondent in the extreme. He had quit the practice for several months, and had been under treatment of this quack, but was at this date having emissions nearly every night—sometimes with a dream, sometimes without. On careful and thorough examination, finding no local trouble, and no call for local treatment, I addressed my remedies to the impaired physical and mental, and, I might add, moral condition, alternating and combining remedies, to the best of my judgment, with what additional light I could gather from standard authors and current literature. Finally, after about six months' treatment, during which I saw my patient once or twice a week, with no permanent relief, both of us were becoming disgusted with each other, when my eyes happened to fall on a short article by Dr. D. P. Duncan, in the Therapeutic Gazette, for Aug., 1883, on "Aletris Farinosa as a uterine tonic." I concluded that what is "good for the goose, might be good for the gander." I, therefore, as a last resort, and for its tonic effect, put my patient on five-drop doses, ter in die of this drug, the last dose to be taken at late bedtime. To my agreeable surprise he returned in less than a week with a beaming countenance, telling me that the medicine was curing him. He continued this treatment about three weeks, taking nothing else, and got well, and continues so at the present writing—three months after I discharged him.

Translations.

[All articles signed "T" are translated for The Therapeutic Gazette by C. W. Tangeman, M. D., Cincinnati.]

Examination of Erythrophleine, the Active Principle of Sassy Bark.*

Harnack's scientific investigations in later times, have been especially directed to such pharmacological active principles, the diffusion of which in the vegetable kingdom is not general, but which are confined chiefly to certain, so-called, poisonous plants. We refer principally to well-known alkaloids, organic bases, and certain bodies free from nitrogen, of a glucoside nature, etc. The number of substances of such kind which have heretofore been experimented upon, with reference to their effects, is quite large, and we have gained the experience that the complex effects which they create in the animal body are not peculiar to any particular one of their number. We have, through numerous examinations, become acquainted with certain types, or certain combinations of effects, and it is sufficient for the comprehension of the professional man, in order to indicate the general effects of the newly-recovered vegetable substance, to declare whether its action is similar to that, for instance, of atropine, or curare, or digitaline, etc. It very rarely happens now in investigating a new vegetable substance, that any peculiar combination of effects is observed which never before has been observed in the similar investigation of another drug. Occasionally, however, some peculiar pharmacological characteristic is discovered, as for instance, in the case of physostigmin. But much more frequently it is observed that distinctive properties are subordinate to one of the known types.

But notwithstanding the few experimentations in this field of pharmacological study, very surprising facts are not infrequently brought to light, as will, perhaps, be apparent from the results of the examination, which is herewith somewhat briefly reported.† The substance which is considered here will, we hope, for the sake of the interest which is connected therewith, call forth many further examinations in the near future. It is well-known that in the animal kingdom there exist not a few substances which cause in the organism the characteristic symptoms produced by digitaline. These substances are particularly found in some families of plants, as, for instance, in the apocyneæ, numerous species of which contain such active principles. The peculiarities of their effects are generally well-known. In the first instance, a specific affection of the muscles of the heart occurs, as can be proven by observations on the heart of the frog, the effect being marked by four stages—increased strength of systole, heart-peristalsis, so-called, arrest in systole, and, finally, heart-paralysis.

*By Erich Hanrack and R. D Zabrocki, in the laboratory for physiological chemistry and pharmacology, at Halle.

Note.—The laboratory at Halle belongs to the building of the newly-erected Pathological Institute, under the direction of Prof. Dr. Ackermann. It has been placed at the disposal of Harnack and Zabrocki, with ample provisions for its maintenance.

†More explicit points as to the material experimented upon can be found in the dissertation of R. Zabrocki, namely, "Pharmacological and Chemical Examinations of Erythrophleine, the Alkaloid of Sassy Bark."

These effects, as has been proven particularly by Schmiedeberg[1] and by Williams[2] as depend upon a change in the action of the heart, through a direct affection of its muscles by the poison.

All substances heretofore known, to which this effect can be attributed, (we name here only the active principles of digitalis, antiarine, helleborine, scillaine, oleandrine, convallamarine, apocynine, the active principles of different arrow poisons, etc.,) are free from nitrogen, and to a great extent, also, of glucoside. Without mentioning the substances resembling digitaline in their effect, a second pharmacological group is known, the members of which, so far as heretofore examined, are all of them free from nitrogen, namely, the group of picrotoxin, which comprises substances which cause characteristic muscular contractions, in consequence of the irritation of certain medullary centers. This group of "cramp poisons" stands apparently in a certain relation to that of digitaline; for the active principles of digitalis furnish, as Schmiedeberg[3] has proven by boiling them in diluted acids, when resinous split-products are produced, no longer resemble the action of digitaline, but that of picrotoxin. Thus digitoxin gives rise to toxiresin, and from digitaline we have digitaliresin.

In view of the above-mentioned facts, it is somewhat remarkable, as well as interesting, to find the French scientists, Gallois and Hardy,[4] have, in a short communication, reported on an alkaloid which has been isolated by them, the action of which, according to their description, must apparently be designated as that of digitaline. This base is derived from the bark of erythrophleum Guineense, R. Brown.[5] This substance, which has been called erythrophleine, was derived by Gallois and Hardy, from an alcoholic extract of the bark, by means of acetic ether, in which it is readily soluble. The process of Stas may also be used for its isolation. The base apparently exists as such in the bark, and is not formed in preparing it through decomposition of a substance of a complex structure of the nature of a glucoside, as Gallois and Hardy call it. The conformity of its action on frogs with that of digitaline is not expressly indicated by these authors, but the effects, as described by them, on the heart of the frog leave scarcely a doubt of such conformity. In addition to this, they have also observed a paralysis of the muscles of frogs as among its effects. Of its action on mammals it is briefly stated (and this is very suggestive) that the substance causes chronic convulsions and dyspnœa. It is further stated that the poison, like digitalis, increases the blood pressure and diminishes the frequency of the heart's contractions, but that, in the last stage of the action, these contractions are considerably accelerated. Brunton and Pye* state, also, that the bark of erythrophleum guineense contains principles whose action is like that of digitaline. These two latter authors, who experimented with the aqueous extract of the bark, observed also that in mammals death occurs with emprosthotonos.

The publication of the two French authors seems to have attracted but little attention in Germany, notwithstanding the matter merits no small degree of interest. For this reason we deem it important to subject the drug to a more thorough examination. The material with which we experimented was kindly furnished us through Mr. E. Merck, of Darmstadt, to whom we here express our sincere thanks. Several preparations made by him from the sassy bark were placed at our disposal. The one designated as "resin" we have thus far not been able to investigate. The second, in the form of a yellowish powder, and designated as a "glucoside," was free from nitrogen, only partly soluble in water, though completely soluble in alkalies, and could be precipitated out of the solution by acids. In boiling it with diluted acids it furnished a product of strong reducing power. However, the preparation was apparently not pure, and to this point we shall refer again later on. The action on animals was shown to be but a very weak one, and has nothing in common with the action of digitaline. Only after comparatively large doses did signs of paralysis appear in frogs, when the natural movements, and later on also the reflex movements were retarded. The animals, however, had recovered the next day. It was, therefore, not considered necessary to make a more thorough investigation of this preparation.

Much greater interest, however, attaches to the third preparation offered, which came in the form of a clear red-yellow syrup of a peculiar odor, similar to that of tobacco, and of a clearly alkaline reaction. This preparation consisted, as was soon discovered, mainly of two substances, the major of which, the base (about three fourths of the whole) claimed our attention first. The second substance, containing the preparation, of which we shall speak further on, may be called a product of decomposition of the base, and from a pharmacological point of view it possessed no particular interest.

We will remark right here that we have not heretofore made an elementary analytical examination of the base, the name of which, erythrophleine, we will retain. It is apparent that such examination would furnish no useful results, as we were never able to retain the different combinations of the alkaloid, which we never endeavored to prepare otherwise than in the form of a clear syrup. In spite of our

1. Schmiedeberg, Beiträge zur Anatomie und Physiologie, C. Ludwig gewidmet, Leipsic, 1875, page 222.

2. William's Archiv für Experimentelle Pathologie und Pharmacologie, Leipsic, Bd. XIII.

3. Schmiedeberg, Archiv für Experimentelle Pathologie und Pharmacologie, Leipsic, Band III., S. 16.

4. Gallois und Hardy, Journal de Pharmacie et de Chemie, 1876, Bd. 24, p. 25.

5. The tree is indigenous to Western Africa, Sierra Leone, etc., where its beautiful, firm wood is of great value in the arts, as it is not attacked by termites, or white ants. The bark has been called "sassy," or "tali." In French it is called "ecorce de mancône des Portugais," or "Bourane de Floups" The Englishmen call it "casca bark." The natives use the bark for poisoning their arrows, as also in their trials by ordeal. A related species, erythrophleum coumeng, contains, according to Gallois and Hardy, a base which is said to act as above mentioned, and to be, in chemical properties, very similar to, and, perhaps, identical with it.

*Brunton and Pye, St. Bartholomew Report 12, 1876, page 125. Phil. Transactions of the Royal Society, June 15th, 1876, vol. 167, part 2, page 624-5. The conformity with the action of digitaline has also been stated by Drummond. (Lancet, 1880, page 763,) as well as by Sée and Bochefontaine. (Comtes rend. 1880, page 1366.)

greatest care we were unable to obtain crystallization, at least in the form of firm grains.*

We do not intend to have it inferred from this, that continued experiments may not finally be successful in producing such crystals, with the aid of which elementary analytical examinations can be conducted with better prospects of success. It is conceivable that the composition of a base can be more easily derived from its products of decomposition.

When we began to examine the original preparation with reference to its effects in the animal body, we could distinctly prove the undoubted presence of a digitaline action, but we made an additional observation at the same time, viz., that besides the digitaline action in cold and warm-blooded animals, this substance produced a symptom which reminded us uncommonly of the action of picrotoxin.

In the face of this fact the next question was whether we had before us a mixture of two substances, one of which acted like digitaline, the other probably a product of decomposition of the former, acted like picrotoxin. This presumption was very natural. As we mentioned above, Schmiedeberg and Perrier had proven that the active digitalis constituents furnish products of decomposition to which the picrotoxin action must be ascribed. If, therefore, in our case, we had also to do with the base which appeared to be the bearer of a digitaline action, its qualities, nevertheless agreed, on the other hand, with those of digitaline, which is free from nitrogen, in such an apparent manner that both furnished analogous products of decomposition. We had to presume so *a priori*. Our further examination, however, did not confirm this apparent presumption, though we very soon succeeded in finding in the original preparation a second substance with quite different properties. This second substance, though a product of decomposition of the base, had the action of neither the one nor the other, and the more thorough investigation of erythrophleine led us to the surprising conclusion, that though of a basic nature, it combined in itself, in a certain manner, the main action of digitaline with that of picrotoxin. This was remarkable, also, from the fact that heretofore only bodies free from nitrogen have been known to act in this manner. Of course we are already familiar with pyridin, for instance, the action of which to a great extent, reminds us very much of that of picrotoxin.

We took pains in many different ways to find out whether the substance designated as erythrophleine was not a mixture of two substances. We employed a large number of mediums of solution and of precipitation, etc, but always obtained the products of decomposition of an entirely different action, to which we refer further on, or we obtained the base which causes both kinds of action either simultaneously or in succession. It may, perhaps, be said that the possibility of there being still two bases, cannot be denied, but in that case they should so completely harmonize in their qualities that a separation would at present be impossible. We have never been able to obtain even the slightest evidence of this being the fact.

(*To be continued.*)

*Lately Mr. E. Merck has prepared an "erythrophleinmuriaticum," which consists at least of a solid, rather hygroscopic, yellowish substance, but even he did not succeed in obtaining a crystallized combination.

Chemical Examination of Manaca.*

At the suggestion of Dragendorff, manaca, the new drug introduced by Parke, Davis & Co., was selected for the purpose of demonstrating its physiological and chemical properties. This same firm kindly furnished me with specimens of the crude drug. The bark is covered with a brown epidermis which is easily separated. Underneath this we find the solid bark of a greyish-brown color. From the examination of a microscopic section, I come to the conclusion that manaca belongs to the family of apocynaceæ. At any rate it does not belong to the order of scrophulariaceæ, since it does not correspond in structure with this order. Amylum occurred in the bark and in the wood, possibly due to the fact that the drug was gathered during the time of vegetation.

I have spent considerable time traveling in the northern provinces of Brazil, Maranchâs, Parà and Amazonas, and during this time naturally came in contact with many tribes of Indians inhabiting these districts, especially near the Amazon river. My aim was to study some of the remedies that are applied by these tribes for the cure of disease. By the aid of "Griesbach's Flora," I have been able to classify many of them, but quite a large number could not be classified at all. Not unfrequently a single plant has five or six names. The preferred method of exhibiting drugs among the Brazil Indians is to use the remedy locally; but when the drug must be taken internally, then the largest possible doses are taken for a day or two. This is because of an intense dislike of everything that tastes bitter or unpleasant. Manaca is one of these remedies, and when an Indian suffers from one of the diseases so frequent among this class of beings—rheumatism or syphilis—he gathers some of the fresh root of manaca and scrapes about two drachms very finely and puts it into a glass of "cachass," the so-called rum of that region, and swallows the whole dose at once. He then goes to to his hammock and awaits the action of the medicine. In the course of a few hours pains set in, of a sharp stinging nature, with free diaphoresis. If the disease was rheumatism this will usually be all the treatment that is required, and the patient is well for some time.

There are two varieties of this drug, a white and a red. A large number of American physicians have employed it therapeutically, and many of them record good results, while others are reserved in their opinion. A fluid extract and a tincture are generally employed. It has yielded good results in rheumatism and syphilis; it acts as a cathartic and as a diuretic, and may possess a few more therapeutic properties, which, however, need further observation to develope them.

The record of chemical reactions is quite tedious to

*Abstract of Inaugural Dissertation, by R. Lenardson, Dorpat, Russia.

the physician, therefore we will pass it over and give only the results of a quantitative analysis:

	Per Cent.
Moisture	10.057
Ashes	1.069
Fatty matters soluble in petrol-ether	0.25
Fluorescent, waxy-like substances	0.185
Resin and other principles soluble in alcohol	1.483
Albumen	2.4
Organic acids and fluorescent substances	0.3
Ammonia	0.085
Nitric acid	0.588
Albuminous matter soluble in water	1.637
Metarobin, soluble in 1% sol. caustic soda	0.96
Albumen, sol. in 1% sol. caustic soda	1.25
Substances sol. in caustic soda after separation of albumen	0.56
Amylum	11.25
Paraffine-like substances	2.3
Substances soluble in ammonia and alcohol that are not precipitated by hydrochloric acid	1.29
Albumen not soluble in caustic soda	8.05
Lamellar substance	0.7
Cellular substance	22.8
Lignin	27.766

But since the physiological action is of more interest, we will call attention to a few experiments that were made with the active principle of manaca, manacin. The first experiments were made on a frog. 0.01 gramme (gr.⅙) of the alkaloid, dissolved in hydrochloric acid, was administered subcutaneously. In the course of three or four minutes muscular contractions set in, beginning at the head and lasting 15 minutes. The skin gives off or excretes large quantities of a slimy fluid. The sensory nerves are paralyzed. After the expiration of two days the animal had made a complete recovery.

Exp. 2. 0.02 gramme (gr.⅓) of manacin, in same solution, given subcutaneously to a frog, caused all the symptoms above mentioned, while a little later, paralysis of the anterior extremities and then paralysis of the posterior extremities set in, followed by death in about one hour.

Exp. 3. In this instance the drug was given to a cat, by the mouth. The dose was 0.3 gramme (gr.v). One hour after administration it caused evacuation of the bowels, and muscular twitchings, especially about the ears; respiration was increased. After three hours the cat was killed and dissected but nothing worth mentioning could be observed.

Exp. 4. 0.5 grammes (gr. vijss) was given to a cat per os. In the course of one hour there was evacuation of the bowels, with partially digested bits of meat. Unusual twitching was quite marked, but disappeared after three hours. The posterior extremities were frequently stretched out, the claws were relaxed, and the gait showed a lack of co-ordination. Large quantities of mucus were given off from the nasal mucous membrane. In three days the animal had entirely recovered, and when food was brought, it was accepted. The muscular twitchings are peripheric and clonic, caused by the action of manacin on the nerve-endings supplying the muscles.

Manacin has also a mild action on the spinal cord, as was shown in a few of the experiments.

In the cases where manacin was given to patients at the clinic, it was administered subcutaneously. It caused local pains with abscesses, when 0.03 gramme (gr. ½) doses were given. Doses of this strength did not cause any general symptoms.

The remainder of the work we can briefly summarize as follows: The plant that I examined belongs to the family apocynaceæ, and is known by the name of "red manaca" in commerce. It contains two principles, the one an alkaloidal body, the other a fluorescent substance. Manacin has weak basic properties, and cannot be crystallized very easily, although it dialyzes readily. It is soluble only in water, alcohol, and menthol-alcohol. The solutions are easily decomposed. A solution in hydrochloric acid is the most staple. In a concentrated solution the metal salts cause an amorphous precipitate, which is readily soluble in water. Manacin is the active principle of the plant. In large doses it acts as a poison. Manacin and the fluorescent substance are found in all part of the plant, in the bark as well as in the wood. T.

New Modification in the Antiseptic Dressing.

Since Lister published his observations on antiseptic dressings, the method has come into universal use, not only by the surgeon, but by the practitioner of general medicine. It is, however, not so much the exact method of Lister that surgeons have carried out, as the principles, such as prevention of infection, careful disinfection, drainage for the secretions, and the careful arrest of hemorrhage before the wound is closed. If these principles are not properly carried out, it matters little how many layers of gauze and bandage are put around the wound. The reformation was made largely by Bardeleben, and at the present time nearly every surgeon has modified the dressing to suit himself on the case in hand. With some the spray is still retained. Lister himself did not adhere to the method he first advocated. The surgical dressing, as made in Vienna at present, is as follows: The spray apparatus has nearly disappeared, although with some it is used before the operation on the region to be operated upon. The catgut ligature is not employed a great deal, most surgeons preferring Czerny's disinfected silk, which is preserved in a 5% solution of carbolic acid. In Germany catgut is preferred. Billroth used a combination of iodoform and carbolic acid as a dressing. Instruments and drainage tubes are soaked in a 3% solution, and the wound is washed with a solution of the same strength. The next step is to put on a few layers of iodoform gauze, and finally carbolized gauze; over all of this a layer of "Billroth's batist;" the whole is enveloped in absorbent cotton. The therapeutic result of this dressing need scarcely be pointed out. Albert makes use of nearly the same dressing. Mosetig uses iodoform exclusively as a dressing. Wounds of cavities are filled with iodoform powder. Toxic symptoms have until now, not been noticed at this clinic. Hofmalk is employing the sublimate dressing, of which little can be said as yet.

Now, I wish briefly to call attention to the method employed at the Garrison Hospital No. 1. In the largest number of cases carbolized gauze is used in operative wounds of the rectum, genitals and mouth; and in gunshot wounds iodoform gauze is taken. The carbolized we prepare ourselves by drawing the ordinary gauze through the following mixture:

℞ Resinæ.....1500.0
Spiritus vini.....8000.0
Acidi carbolici,
Glycerine ää.....500.0

M.

The material is then dried and cut into suitable strips and preserved in tin boxes. The wound is irrigated with a 5% solution of carbolic acid, and silk ligatures are used. The sponges that are used during the operation are specially prepared before they come in contact with a wounded surface. The surgical clinic conducted by Schede, of Hamburg, is undoubtedly the largest institution of the kind in the world. It has 500 beds, and since it has become impossible for him to control this vast amount of material, he has appointed assistants, one for 200 beds, receiving all the cases that are suspected, that are not aseptic, such as phlegmon abscesses, boils, etc. This department he seldom visits himself unless in more than ordinary cases. The remaining 300 beds are divided into three sections, of 100 beds each under the direct supervision of an assistant. One of these sections is visited daily by Schede, so that he completes his rounds in three days. Carbolic acid is employed to disinfect the instruments. Aside from this a solution of sublimate is used for the hands, sponges, drains, ligatures, and for the irrigation of the wounds. The assistants claim that the finger nails are affected by this solution, 1: 1000, while the sponges become brown and rotten. The dressing is exclusively the sublimate, in 10% solution.

The technicality of the dressing is a little different in every surgeon's practice, but we cannot refrain from calling attention to the fact that so many cases are reported at present, especially where the sublimate solution is used, where the patient recovers without a reaction even, as Fillembaum mentions that he saw a series of ten cases of hip-joint resection by Schede in the ward at one time (all children) and that all recovered without any reaction. The room for operation is small but handy. Before each operation the steam spray-apparatus is in operation for some time (with a sublimate solution). After every operation the room is absolutely inundated with water, completely flooding everything. Esmarch, at Kiel, whose name is known all over the world, employs a solution of chloride of sodium, 6:1000; does not use sponges during the operation. The instruments are all made out of one piece of metal; do not contain slides or catches, since all these rough points can carry contagion. Every patient put on the table for operation, is stripped naked, only covered by a rubber cloth. E. uses decalcined bone drainage tubes, which need not be removed since they are absorbed. The continuous suture is largely used, and the wound completely closed, and new openings made for drainage. The bandages are sprinkled with a solution of sublimate.

Bergman does not use sponges, but cotton saturated in the sublimate solution in little pledgets, which is also used to saturate the gauze for bandages.

Bardeleben combines carbolic acid and sublimate, but he still retains the use of sponges.

Volkmann employs carbolic acid exclusively for instruments, as an irrigant and to prepare the bandages. Until now there has not been a case of erysipelas reported caused by sublimate. Symptoms of intoxication can occur whether we use carbolic acid, iodoform, or sublimate, but in either instance the latter is more desirable.

To use "charpie" made from old linen, that has been worn for years and washed frequently as a dressing, as has been ordered to be used by the military hospitals of France, there cannot even be a claim to antiseptics in the principle.—*Wiener Med. Wochenschrift.* T.

The Influence of Arsenic in Tuberculosis of the Joints.

The following is a brief extract of the remarks by Langenbeck, in the debate on arsenic before the Berlin Medical Society. The treatment of tuberculous affections with arsenic is nothing new, since nearly half a century ago lupus was generally treated with arsenic paste, locally applied, and Fowler's solution, given internally. Possibly the fear of arsenic poisoning caused many to abandon this method of treatment. L. has not seen one instance of bad results during a course of arsenic, while he certainly can record many cures. Hebra treated lupus affections with arsenic, and praised the remedy very much. Hs employed large doses of Fowler's solution, seldom setting up gastritis, which he prevents by the addition of tr. opium. L. asserted that, undoubtedly, in many cases that have gone through a course of arsenic, large cavities in the lungs could be found perfectly healed, and for this same reason arsenic is being given to phthisical patients at the present time. He had an opportunity during the past year to study the effect of this drug on patients affected with tuberculosis of the bones and joints, where it was always given as after-treatment in resection. As a rule in these cases, even with the best of care, long-continued suppuration occurs, and the patient remains under treatment for months. L. has carried out this plan in six cases: three elbow resections, one knee, one hip-joint, and one of forcible extension in a fungoid degeneration of the joint. We will only give the history of one of the most interesting cases: During the early part of December a patient from Weisbaden, eight years of age, presented with inflammation of the hip-joint of the left side, of 18 months' standing. The patient was very much emaciated, had some fever, while the deformity was a flexion and rotation inward. The limb was already somewhat shortened. The tissues in the immediate vicinity of the joint were sensitive and very much swollen, with slight fluctuation. Resection was determined upon, and as soon as the first incision was made into the joint a large quantity of stinking fluid escaped.

The head of the femur was nearly destroyed, and had left the socket. The resection was made below the trochanter. The bone was quite thin, and the medullary substance was diseased to the extent of 5 to 6 Cm. (about two inches). The socket was perforated. The granulations of the synovial sac were carefully scraped out, and the whole surface carefully disinfected with a sublimate solution, 1:1000; two drainage tubes were put in and the wound united, and the whole dressed with iodoform. The extremity was treated by extension with weights. During the first week the symptoms were all favorable; temperature in the evening, 38° C. (100.4° F.), and very little discharge from the wound. The symptoms

now changed rapidly; fever set in, with a temperature of 40° (104° F.) in the evening and 38° in the morning; the discharge was copious and purulent, and debilitated the child entirely. Catarrh of the stomach supervened, disturbing the appetite greatly. There was little doubt as to the lethal ending of the case; since bed-sores made their appearance, nutrition was low. L. now ordered Fowler's solution, first in one-drop and later in two-drop doses, given in combination with cod-liver oil. After two weeks of this treatment there was a noticeable change for the better; fever subsided, appetite increased, discharge ceased, and the wound rapidly healed from the bottom.—*Wiener Medicinische Blätter.* T.

Apomorphia as an Emetic.

If the reader will reflect for a moment, he will understand the value of such a remedy as apomorphia—a remedy that will cause prompt and rapid emesis when injected subcutaneously. Routh reports two cases that demonstrate its action very nicely. The first case was one of oxalic acid poisoning; the patient, when found, was already dying; the hands were clenched; froth and blood was oozing from her mouth, and respiration apparently had ceased. The pulse was barely perceptible. She had not vomited. 0.004 gramme (gr. $\frac{1}{16}$) of apomorphia was now injected subcutaneously, and in 2½ minutes the contents of the stomach were suddenly and forcibly ejected; the pulse became perceptible, but soon ceased entirely. The second case was of a woman found in a comatose condition, evidently due to spirits, since she was in the habit of taking large quantities of brandy. She could not be aroused. The pupils were dilated, pulse was intermittent, respiration stertorous, and the stomach full of fluid. 0.004 gramme of apomorphia was injected under the skin. The effect was to cause the emesis of one pint of alcoholic fluid in the course of 3½ minutes, and in the course of 5 minutes more almost a quart of pure brandy was ejected. Pulse and respiration began to improve rapidly, and in 12 hours the patient awoke and felt good.

According to Routh, apomorphia does not excite vomiting during chloroform narcosis.—*Pharmaceutische Post.* T.

Nitrite of Amyl in the Treatment of Chronic Heart Disease.

The author publishes, quite at length, the history of a series of cases, accompanied by the spyhgmographic tracing of the pulse, during a course of nitrite of amyl. He claims not to have noticed a single instance of benefit brought about during the dyssystolic period, by the use of this drug. It did not have a tendency to stimulate the heart, and only in one single instance could he record even the slightest benefit. In healthy people the physiological action of amyl is to cause an increase in the frequency of the pulse rate, but the author could not recognize this in his patients, even when large doses had been administered.—Vincenzo Patella, in *Gaz. Med.* T.

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The Effects of Alcohol on the Tissues.

THERE are probably few of our readers who have not been very much interested in the report of the experimental investigation into the action of alcohol by Drs. Dujardin-Beaumetz and Audigé, as contained in the July and the present issues of this journal. The able article by Dr. E. P. Hurd is a most excellent supplement to that of his transatlantic collaborators, and will especially commend itself because of its very practical nature. The experiments of our contributors, the French scientists, cannot but impress the reader with the devotion of these gentlemen to the cause of science, while the value of the results, strongly corroborative as they are of views which, although generally accepted, have been yielded but a wavering attachment by many, can scarcely be over-estimated.

The question of the place of alcohol in medicine, and in the dietary, and especially in the latter, has always been one on which there have been violent disputes. We have arrayed on opposite sides those who find in the physiological action of the drug a very sufficient reason for its use, within proper limits, in both health and disease, and those who will concede under no possible circumstances the necessity of the use of this agent. The latter, however, are those who view the subject from other than a strictly scientific point of view. Seeing the ravages of alcohol in society they give it no quarter, and it is to be feared that their virtuous indignation very frequently carries them to extremes. The scientist can afford to go to full length with these in their denunciation of alcohol, and, as a philanthropist, deplore its ravages, but he cannot condemn an article of the materia medica because men will, in the face of the frightful examples on every hand, persist in

its abuse. Great as are the evils of alcohol, they are greater only in degree than those attending the abuse of many of the other substances which are daily partaken of either as luxuries, or as necessaries of life. It has, indeed, become a grave question whether drunkenness—intemperance in the use of alcohol.—or gluttony—intemperance in the use of victuals—, is doing the most harm to-day, is most injurious to those functions, the proper working of which means health and long life, entails the most poverty, is the source of the most disease. These are questions which we, however, do not propose to discuss at the present time. It is our object more particularly to solicit the attention of our readers to the conclusions deducible from the carefully recorded experiments above referred to, and to note, briefly, a point or two of difference between them and the views on this question sought to be inculcated by total-abstinence advocates. We are, of course, met immediately on the threshold with the objection that a hog is not a man, and that notwithstanding the declaration of experimenters that this animal was selected because of the nearness of his resemblance to man in the structure of his digestive apparatus, and because also of the additional fact that he was the only animal that would willingly consent to imbibe the alcohols, there exists such an essential difference in the nervous organization of the two animals as to very largely vitiate any conclusion drawn from experiments on the one as applicable to the case of the other.

There is, doubtless, much force in this objection, but it is not greater than that which may be raised in the case of any of the other physiological experiments, the conclusions of which have done so much to advance our knowledge of the effects of drugs on man. In the present instance, the difference between the nervous organization of the higher and lower animal is the chief, and the results of the experiments, as far as concerns the establishing of the effects of alcohol on the nervous system of man, are comparatively *nil*.

The experiments tend very clearly to establish the fact that a certain amount of alcohol can be consumed, if not, indeed, appropriated by the system. When the amount given did not exceed one gramme (fifteen grains) to the kilogramme (about two pounds) of the animal's weight, there was no appreciable disturbance from its use. In the same proportion, a man weighing one hundred and sixty pounds, providing the effects of the alcohol were similar in each case, would consume three ounces of alcohol daily without disturbance, as noted either by local effects on the intestinal tract or by its constitutional effect. The experiments in this regard corroborate the opinions generally entertained, namely, that in small doses alcohol stimulates the appetite and increases the flow of gastric juice, and being absorbed, is consumed in the system, the result of the consumption being an increased amount of force. It is not necessary to adduce the various arguments at hand in support of this proposition, so generally accepted by scientists, who view the subject dispassionately.

When the alcohol was increased beyond the limit above indicated, that is, we may suppose, the amount which the system could conveniently dispose of, the effect was noticeable in the disturbance of the digestive apparatus and in the post mortem appearances of the mucous membrane. We suppose the condition of the hog to have been the same as that indicated by the dyspepsia and the morning-sickness, so frequently present as symptoms in the case of the drunkard.

The experiments show a marked disappointment in the results as noted in the case of the liver. We should have expected the post-mortem examination to reveal a hyperplasia of the connective tissue of this organ, and the deposit of a new tissue of a cicatricial nature, which, like cicatrices elsewhere, would have contracted, and by this contraction not only diminished its own size, but also caused absorption by pressure of the tissue around which it was deposited. As a result of this change we have in man the cirrhotic, or small, waxy, hob-nailed liver, following the habitual excessive use of alcohol; in the case of the hogs no such change was noticed, the alcohol not having produced any more conspicuous alteration of the liver than a pronounced congestion, with jaundice. The reason of this discrepancy between the effects of alcohol in the lower animal, and those which it is well-known to cause in the case of man, is alleged to exist in the difference in the intimate structure of the organ in the two.

Liebig held that alcohol was a respiratory food, being rich in carbon, which element, uniting with the oxygen, whether within or out of the body, invariably produces heat. In excessive doses it paralyzes the sympathetic nerve-supply of the capillaries, thus dilating them and exposing the blood which rushes in to fill them, to a much larger evaporating surface, and in this manner reduces the body heat, while at the same time causing disturbance of respiration. In Dujardin-Beaumetz's experiments the derangement of the respiratory system, whether or not directly due to the effect mentioned, manifested itself in a constant cough, and the post mortem appearance of the lung was one of marked congestion, and in some instances even hemorrhages were noted. These results will, doubtless, have the effect of directing attention to the possible effects of alcohol in man. If it shall appear that the effect of the agent is similar in the two animals, the *rationale* of the exhibition of alcohol in large doses, in the case of consumptives will have to be reviewed.

While the heart in the case of the hogs was found to be fatty, this result cannot properly be ascribed to the alcohol inasmuch as this form of degeneration is found to be very common in the case of hogs which have been fattened under confinement. In man the the condition of chronic alcoholism is known to give rise to an atheromatous condition of the larger blood vessels, and the result of the experiments referred to, demonstrate that the excessive use of the beverage gives rise to the same condition in the hog.

A very important point developed by the experiments is noted in connection with nutrition. Although the animals continued to increase in weight as rapidly, if not, indeed, more rapidly, than if they had been deprived of the alcohol, the flesh was not of a healthy appearance. So marked, indeed, was the change in this respect, that it attracted the attention of the inspectors of the shambles, who interposed to prevent its sale when it was offered in the market.

Probably, however, the most important results of

the experiments may be found in the demonstration which they afford of the difference in the effects of pure alcohol, and those of the ordinary alcohols which are found upon the market, and if the prolonged and expensive experiments succeeded in doing nothing more than calling attention to this particular point, the gentlemen who conducted them have won thereby the commendation of all whose interests in the welfare of the race is not tainted by extremism or bigotry. While the abuse of the purest grade of alcohol is capable of producing a very serious change in the economy, these experiments corroborate the view entertained by scientists and more modern social reformers, that it is not the alcohol, *per se*, which work the wide-spread baneful effects which are usually ascribed to it by the reformers whose efforts in the direction of suppressing the use of the article are characterized by zeal rather than good judgment. The animals to whom the impure, unrectified products of the still were given showed early and grave disturbance, both in the functions and organic structure of their organs, while in the case of those to which the purer alcohols were administered the functional disturbances, and actual lesions, did not present until after a very prolonged use of the same. As Dr. Hurd suggests, is there not in these facts something that should arrest the thoughtful attention, not only of such reformers as would accomplish their results by moral suasion, but also that of those who have the power, through legislation, to insure, to a great extent at least, the absence from alcoholic beverages of the deleterious products and adulterations which Drs. Dujardin-Beaumetz and Audigé have clearly shown to be more deleterious in their effects on the system than alcohol itself? Certainly the question is one which should receive the attention of those in authority. If the habitual use of alcoholic beverages cannot be suppressed, (and the most zealous efforts in this direction have certainly not been crowned with any considerable measure of success,) it behooves all who truly desire to rid the land of the ill-effects of alcoholic beverages, so-called, to press upon governments the necessity, both from a moral and physical standpoint, to insure to those who will drink, an article as largely as possible devoid of baneful contaminations.

The McDade Formula in Syphilis.

WHEN the late Dr. J. Marion Sims added the weight of his great name to the endorsement of the formula, which he suggested should be designated by the name of McDade, in honor of the physician who gave the mixture to the profession, divested of the irrelevant matter which the original Creek Indian formula called for, we had little hesitation in confidently soliciting for it a trial for the purpose for which it was so enthusiastically recommended. Ordinarily, and we think our readers will scarcely question the correctness of the assertion, we are not quick to endorse a new drug which has been projected as a specific, and had McDade's formula been put forth under the patronage of a less distinguished name, we should have followed our usual custom, and awaited the recorded experience of many other practitioners before asking for it more than that most tentative trial which is due any drug, or combination of drugs, for which therapeutic properties are claimed by even the most obscure observer.

It is scarcely necessary to state that Dr. Sims' recommendation of McDade's formula secured for the preparation made after it, which manufacturers were not slow to place on the market, a very extensive sale. It is now about a year since the preparation was placed before the profession, and the time which has intervened has been sufficiently long to test its merits, and a sufficiently large number of reports have been made to form the basis of an opinion. Contrary to what there seemed to be ample grounds for expecting, the evidence has signally failed to corroborate the original claim for the compound. We have published such of this evidence as has been submitted to us, among which is, notably, the report by Dr. John Godfrey, of the U. S. Marine Hospital Service, in the March number of our present volume. Other reports have appeared in the pages of our contemporaries, and at the late annual meeting of the Medical Society of the State of Tennessee, the report of which is published in the Nashville Journal of Medicine and Surgery, Dr. Glenn read a paper affirming, as a result of his own large experience, and that of Dr. Douglas, also of the Marine Hospital Service, that the McDade treatment of syphilis is a complete failure. The paper was discussed by members of the society, and not a single favorable opinion was expressed by any who had subjected the compound to the crucial tests.

Naturally, in view of the failure reported, the the reader will seek some explanation whereby the discrepancy between the original claims and this failure may be accounted for. It will not occur to a single reader, even in the form of the shadow of a suspicion, that the lamented Sims, without considerable grounds for his endorsement, lent his great name to bring prominently before the profession his friend, Dr. McDade. Doubtless, his confidence in Dr. McDade's claims was largely instrumental in drawing from him the endorsement, but he would scarcely have risked his reputation as a scientist and as an honest man, on the honesty of even a friend in whom his confidence was great. He was satisfied beyond a peradventure, that the mixture had wrought results more excellent than the mercurial or other methods of treatment had ever effected. Why, then, has it not done so in the hands of the gentlemen who submitted it to impartial trial during the past year? The only explanation which we can suggest to account for the discrepancy, lies in the fact that the patients among whom Dr. McDade and his predecessors, from whom he received the formula, practiced, were negroes and Indians. It is, unquestionably, a fact that different races are differently affected by the same drugs, and it is possible that we have another illustration of the fact in the difference between the action of McDade's formula on Caucasians and that noted on the negroes and Indians, its success among whom furnished such ample grounds for the hope that a really valuable compound had been discovered.

An English View of Eclectics.

IN AN interesting paper read before the Manchester Pharmaceutical Association, on March 25th, Dr. F. C. J. Bird, in discussing a number of new remedies of American origin, takes occasion to inter-

polate his opinion of the eclectic practitioners of this country, to whom he accords the credit of having greatly enriched the materia medica. "The word, eclectic," he remarked, "really meant, selection, but now conventionally it is understood to refer to a class of medical men in America, who confine the drugs used in their practice, to substances obtained from the vegetable kingdom only; and who, when they have exhausted the drug by treating it with alcohol, precipitate the tincture with water, and drying the resulting resinoid powder, believe the preparation thus produced to represent the entire active constituents of the drug, divested of all inert woody matter, etc. For a long time this class of practitioners was regarded, to a certain extent, by medical men, of the other schools, in the light of quacks, but the valuable quality of some of their now well-established remedies, as podophyllin, irisin, etc., have done much to remove that feeling."

Our eclectic brethren will, without doubt, be much interested in the opinion entertained of them by this transatlantic savant.

EDITORIAL ABSTRACTS AND ANNOTATIONS.

Clinical Aspects of Cerebral Syphilis.

The Medical and Surgical Reporter, in its numbers from May 17th to June 7th inclusive,contains a paper by Prof. Horatio C. Wood, M. D., of Philadelphia, on "The Clinical Aspects of Cerebral Syphilis." The great importance attached to this subject, together with the established reputation of the writer for closeness of observation in all matters pertaining to diseases of the nervous system, vest this paper with an unusual degree of interest. The limits of our space compel us to confine ourselves to a mere abstract of it, in which we shall, however, endeavor to present its salient points. Dr. Wood starts out with an acknowledgement of our ignorance, in the light of the present knowledge, of why syphilis should attack one portion of the brain in preference to any other, in any individual case. It is natural to suppose, however, that any cause of ordinary brain inflammation occurring in a syphilitic person would determine an attack of the specific cerebral disease to the part especially operated on by the cause. It has, for instance, been asserted that cerebral syphilis has resulted from sun-stroke, blows, and other injuries. Some authors also have attached much influence to over-study and other forms of cerebral strain as exciting causes of brain syphilis in those suffering from the diathesis. Dr. Wood declares that so far as his observations goes, the exciting causes of brain syphilis are very rare.

Inherited syphilis is less apt to manifest itself in the nervous system than any other portion of the body, although it is capable of causing every type of nervous disease that follows infection from a primary sore. The symptoms may not appear until late in life, and it is probable that specific nervous affections may appear for the first time after puberty,in the unfortunate offspring of a syphilitic parent. In acquired syphilis the involvement of the nervous system certainly belongs to the advanced stages of the disorder. This fact should be borne in mind in making a diagnosis of cerebral disease, as must also the fact, that nervous syphilis may in later years, develope in patients in whom the primary affection was so slight as to have been quite overlooked and forgotten. The statement of the patient must, therefore, not be accepted in lieu of the careful examination for the discovery of the tell-tale cicatrices. The existence of two pathological varieties of brain syphilis is conceded by all syphilographers, while some believe also in a third form. The most common seat of attack is the membranes, next to these are the brain vessels, while occasionally (although it is denied by many) the brain tissues are attacked.

The symptoms betokening an attack of the brain membranes frequently develope very suddenly, although the developement is apt to be gradual.

Persistent headache, slight failure of memory, unwonted slowness of speech, general lassitude and especially lack of willingness to mental exertion, sleeplessness or excessive somnolence, attacks of momentary giddiness, vertiginous feeling with straining at stool and other acts disturbing cerebral circulation or alteration of the disposition—any of these, and, a fortiori, several of them, occurring in a syphilitic subject, should at once lead to an examination of the optic disks. If a choked disk be found, the existence of cerebral syphilis is established, although the absence of this symptom is not proof that the patient is not suffering from the affection. Of the symptoms indicated, persistent headache is the most common. But there is another symptom whose existence is more pathognomonic. This is the occurrence of repeated, partial, temporary palsy in any part of the body. In a great majority of cases where such phenomena occur repeatedly, the patient is suffering from syphilis or hysteria.

Meningeal syphilis may be either acute or chronic, although Dr. Wood is inclined to doubt the possibility of the occurrence of the acute variety without an antecedent existence of the chronic or of a gummatous tumor.

The symptoms of chronic meningeal syphilis most usually develope after the existence, for some time, of the prodromata above mentioned. Their onset may be marked by epileptic attacks with incomplete hemiplegia and monoplegia; very frequently diplopia,due to weakness of some of the ocular muscles, is manifested before the epilepsy. Oculo-motor paralysis and a marked paralytic squint, are often early and pronounced symptoms. If the case progresses favorably under treatment, these symptoms will slowly disappear, but in unfavorable cases they are followed by a gradual sinking into complete nervous paralysis, or the patient is carried off by an acute inflammatory attack. The clinical varieties of cerebral meningeal syphilis are so polymorphic and kaleidoscopic, as to make it almost impossible to reduce them to order for descriptive purposes, and various classifications are given. Dr. Wood gives preference to that of Huebner, which is as follows: 1. Psychical disturbances with epilepsy, incomplete paralysis, (seldom of the cranial nerves,) and a final comatose condition, usually of short duration. 2. Genuine epileptic attacks with succeeding hemiplegia, in connection with peculiar somnolent conditions occurring in often-repeated episodes: Frequently phenomena of unilateral irritation, and generally at the same time.

paralysis of the cerebral nerves. 3. Course of cerebral disease similar to paralytic dementia. To this type Dr. Wood adds, 4. Psychical convulsive disturbances, without complete epileptic convulsions, associated with palsy of basal nerves and often with partial hemiplegia.

The most satisfactory way of approaching this subject is, however, to study the important symptoms in severalty, rather than to attempt to group them so as to make typically recognizable varieties of the disease. Among these important symptoms headache, as already intimated, stands first in significance, although often it may not be absolutely characteristic. When, however, it is excessively persistent, apparently causeless, with a tendency to nocturnal exacerbation, it should excite suspicion of specific origin, and this suspicion should always be increased by the occurrence of slight spells of giddiness or by delirious mental wanderings, accompanying the paroxysms of pain. There are two antagonistic disorders of sleep which are also very significant, namely, insomnia and somnolence. Insomnia is, however, valuable as a symptom only when combined with some other marked symptom. The peculiar somnolence is more suspicious, although it may also occur in non-specific meningitis. It is of two forms—in one variety, the patient sits all day long or lies in bed, in a state of semi-stupor, indifferent to everything, but capable of being aroused, answering questions slowly, imperfectly and without complaint, but in an instant dropping off again into his quietude. In the other variety the sufferer may be able to work, but often falls asleep while at his tasks. At night his actions are often peculiar; he gets out of bed, wandering aimlessly and seemingly without knowledge of where he is, and unable to find his bed, passes his excretions in the corner of the room, or any other similar place, not because he is unable to control his bladder and bowels, but because he believes he is in the proper place for such action. He seems a restless automaton rather than a man.

Paralysis of any conceivable variety affecting either the sensor, motor or intellectual sphere, may occur from cerebral meningitis. It may occur instantaneously or develop gradually. A suddenly developed, complete hemiplegia, or other paralysis, is probably due to a clot. An incomplete palsy may be rationally believed to be due to pressure or other removable cause, and this belief is much strengthened by a gradual development. The bearing of these facts upon prognosis, it is scarcely necessary to point out.

Although gummata, which, by pressure, cause paralysis, may develope at any portion of the brain, they are most prone to occur at the base, and hence strabismus, ptosis, dilated pupil, or paralytic eye-symptoms in adults, are usually of syphilitic origin. The significance of the temporary slight paralysis has already been referred to. Motor paralysis is more frequent than sensory in syphilis, although hemi-anæsthesia, localized anæsthetic tracts, and, indeed, any form of sensory paralysis may occur, and the special senses are liable to suffer; and the palsies attacking them follow close, and have clinical histories parallel to those of the motor sphere. Aphasia is a peculiar symptom of cerebral syphilis. It is usually confined to advanced stages of the disease, although it may develop as one of the earlier evidences. It may occur in every conceivable form of the disorder. Owing to the fact that the centers of speech are situated in the cortical portion of the brain, aphasia in cerebral syphilis is very frequently associated with epilepsy.

Disturbances of renal functions, which are rarely met with in cerebral syphilis, are probably usually dependent upon a specific exudation pressing upon the vaso-motor centres in the medulla.

The occurrence in adults of an epileptic attack, or of an apoplectic fit, or of a hemiplegia, after a short and intense and protracted headache, should always excite great suspicion. Epilepsy occurring as a symptom of syphilis, differs in no important particular from idiopathic or essential epilepsy.

In addition to the psychical symptoms already referred to, may be mentioned the fact that syphilis is liable to produce almost any form of insanity, and, therefore, mania, melancholia, erotic mania, delirium of grandeur, etc., may develop along with the ordinary manifestations of cerebral syphilis, or may go on during the attack which has hitherto produced only the usual symptoms. The possibility of the development of insanity as a result of syphilis has been disputed by some writers. Dr. Wood argues this question at some length, and, besides quoting cases from the literature on the subject, argues very logically that if the disease is apt to attack any portion of the brain, it is liable to cause insanity. If there be disease of the brain cortex produced by syphilis, of course such disease must give rise to mental disorder, and if the lesion be situated in such a way as to affect the psychic and avoid the motor regions of the brain, it will produce mental disorder without paralysis, that is, true insanity. Again, if such brain disease be widespread, involving the whole cortex, it will cause a progressive mental disorder accompanied by gradual loss of power in all parts of the body, and ending in dementia, with general paralysis. The question as to the diagnosis of these cases of pseudo general paralysis from the true incurable variety, is important. The following points have been relied upon as aids to this diagnosis, they being characteristics of the syphilitic variety: The occurrence of headache, worst at night, and present among the prodomes; an early persistent insomnia or somnolence, early epileptiform attacks; the exaltation being less marked, less persistent, and perhaps less associated with the general maniacal restlessness and excitement; the articulation being paralytic rather than paretic; the absence of tremulousness, especially of the upper lip. The effect of anti-specific remedies is also important in diagnosis. Although Dr. Wood does not refer to this special diagnostic point in the article before us, we take the liberty of quoting from a paper by him on another occasion. In this he states that if 10 grains of iodide of potassium three times a day produce symptoms of iodism, he concludes that the disease is not specific. If, on the other hand, the patient takes from one-half to one-drachm doses of iodide of potassium, without symptoms of iodism, and thrives thereon, he regards him as a syphilitic. This diagnostic point is applicable in all the protean manifestations of this pervading disease.

The Treatment of Epilepsy.

Epilepsy has been a *bête noir* of the medical profes-

sion. Many remedies which have from time to time been recommended for its cure, have been tried and found wanting, so that now the only drug which is administered with any considerable hope of benefitting the patient, is the bromide of potassium, or some other compound of bromine. Probably physicians err in confining their efforts at relieving this disease, to medication, thus neglecting other essential points in the treatment. In a lecture delivered at the Philadelphia Hospital, Dr. William Pepper took occasion to refer to some of these points, the correction of which does not call for anything directly in the way of medication. He insisted on the necessity of a careful examination for the discovery of possible points of peripheral irritation, as, for instance, adherent prepuce, deranged conditions of the gastro-intestinal canal from worms and foreign matters, chronic irritation of mucous membranes, etc. The discovery of these, must of course, be immediately followed by means for their correction, and cases not infrequently present in which the removal is promptly followed by relief of the epileptic seizure. Hygiene and suitable regimen are also of great importance, and particular attention should be paid to the matter of diet. Epileptics are, as a rule, voracious, hurried and careless eaters, often having morbid desires, and usually difficult to control. Restraint and moral suasion must be brought to bear for the correction of these. Fat and nitrogenous foods are usually indicated, care being taken that they shall not be allowed to disturb the stomach or intestines. In some cases, over-indulgence at the table is the exciting cause of epileptic seizure, and in these a rigidly restricted diet will be found beneficial. Dr. Pepper is inclined to attach great importance to the Salisbury plan, in which the patient is restricted to raw meat as a diet, and given copious draughts of hot water. Where the epileptic is troubled with that type of dyspepsia in which the salivary and pancreatic juices are deficient, it is, of course, necessary that the meat shall be selected with sufficient care to obviate the ingestion of the larvæ of tapeworm.

Without particularizing further, suffice it to say that Dr. Pepper insists upon the necessity of treating the patient rather than the disease, although, of course, he recognizes the necessity of directing remedies to the relief of the epileptic symptoms proper. Among the drugs for this purpose he places the bromides in the first rank, and he mentions in the order of their importance also, the oxide and valerianate of zinc and preparations of silver, notably the nitrate, taking care to admonish against the too prolonged use of the latter, on account of its danger of causing permanent discoloration of the tissues. He is inclined to think, however, from the fact that the nitrate of silver is most beneficial in cases in which the epilepsy is associated with disturbances of the gastro-intestinal canal, that the drug is useful rather through alleviating peripheral irritation than through any direct action it has upon the nervous centers. Arsenic has also been administered with benefit and its good effects are probably traceable to similar action. In treating cases with the bromides, the patient must be carefully watched for evidences of bromism, on the appearance of which the drug should either be discontinued or materially reduced in quantity.

When, for any reason, it is deemed advisable to temporarily discontinue the bromides, the interim may be supplied with some other anti-convulsive, and probably most efficiently with nitro-glycerine and nitrite of amyl. In chronic cases it will be found advantageous to frequently interrupt the administration of the bromides.

The question of effect of the prolonged use of the bromides upon the system is an important one in this connection, and an article on this phase of the subject by Dr. A. Hughes Bennett, in a recent number of the Lancet, discusses it in an able and exhaustive manner.

It has been suggested that the prolonged use of the bromides is apt to develop the habit, as in the case of the use of opium. The danger attached to such habit in the case of the bromides is infinitely less than in the case of opium. The opium habit is deleterious in itself, and indulged in merely to satisfy more of a craving. The bromides, on the other hand, are less hurtful in their effects, and are taken to avert symptoms of a distressing and terrible malady. Assuming, therefore, that the bromide habit is apt to be formed in the treatment of a case of epilepsy, if it can be shown that the results are not serious while the symptoms they avert are important, the habit acquired may be looked upon as a justifiable one. The facts seem to show that the epileptic constitution is more tolerant of the bromides than the healthy system. As the most severe effects of bromism have been noticed in those who were not victims of epilepsy, it may be assumed that in this disease the entire nervous apparatus is in a state of reflex hyper-excitability, which prevents the depressing or toxic action of the drug, which would occur in a more stable organization. Another important question is this: Does the prolonged use of the bromides tend towards the eradication of the disease itself and the ultimate cure of the epileptic state? Without being in possession of any statistics bearing upon this point, or being able to answer the question from his own observations, Dr. Hughes holds that there is every reason to believe that such a supposition is possible. Certainly the drug has the power of preventing; to a greater or less degree, the recurrence of the epileptic seizure. It is practically harmless in itself, and it is fair to suppose that by subduing for a prolonged period the hyper-excitability to which the epileptic seizures are so largely due, the nervous system is given an opportunity to recuperate and to become reinvested with that quality, the absence of which is the cause of the malady.

Dr. R. N. Wolfenden, lecturer on physiology at the Charing Cross Hospital Medical School, having been frequently disappointed in the action of the potassium bromide in the treatment of epilepsy, has lately been trying hydrobromate of conia, a remedy which he does not believe has previously been employed in this complaint. He reports in detail several cases in which he employed the drug, and from his use in these he concludes that it is undoubtedly serviceable in certain cases, and those in which it fails are cases of convulsions dependent on some gross lesion of the brain. The slight cases were distinctly benefited by it. The drawbacks to its use appear in the complaints of headache, and, when large doses are given, giddiness, lasting for an hour and a half at a time, with symptoms of suffusion

and congestion of the conjunctivæ. In the doses in which Dr. W. gave it, there were not noticed any cardiac or respiratory alterations. In his experience a child of eight took one and seven-eighths grains with only headache; a child of seven took one and one-half grains per day without any complaint; two and one-half grains per day were taken by a female without complaint, and one adult man took three and three-fourths grains with impunity. In one case two grains a day caused sickness, headache, giddiness and "weakness" in a young man of 18. One and one-half to two grains appears to be followed frequently by headache. The result in Dr. Wolfenden's hands will certainly justify a trial of this drug, especially in cases in which it is desirable to avoid the unsightly blotches which are liable to mar the personal appearance of the patient, and in which, through idiosyncrasy, bromism is liable to supervene before the beneficial effects of the potassic bromide have been secured.

Gelsemium Sempervirens.

This indigenous drug has achieved a very extended popularity, particularly, we think, in the southern states. The physicians who have employed it most concede it to be a remedy of very active properties, and one capable of gratifying results in properly selected cases. It is made the subject of a lengthy article in the June number of the Chicago Medical Journal and Examiner, by Dr. Chas. Gilbert Davis, of Chicago. Dr. Davis has been making a special study of it, and makes certain claims for its therapeutic efficacy which we do not think are familiar to the great body of the profession. After discussing its botanical nature, he refers to what the authorities have to say touching its physiological actions, and then reports some experiments made by himself. When administered in small quantities, gelsemium exerts a mild, soothing effect over the nervous system, manifested by mental quietude, a tendency to drooping of the eyelids, slight muscular relaxation, retardation of the pulse and dilatation of the pupil. Ringer maintains that this dilatation of the pupil is preceded by a contraction. In increased doses these symptoms are intensified, and we see manifested also double-vision, giddiness, increased paralysis of the levator palpebræ muscles, labored respiration from partial paralysis of the respiratory muscles, muscular weakness, with general reduction of sensibilith. In large or poisonous doses the paralysis of the levator palpebræ muscles is complete, the pupils widely dilated and not responding to the action of light, and vision is entirely lost. Muscular paralysis, too, is so complete that voluntary motion entirely ceases, respiration is labored and the action of the heart becomes weak and intermittent. Consciousness is retained until near the period of death, when it is lost, from carbonic acid poisoning resulting from incomplete respiration. The action of the heart continues for some moments after respiration ceases. It appears from these symptoms that gelsemium is a cerebro-spinal depressant. Bartholow intimates that it reduces the pulse by lessening the irritability of the excito-motor ganglia of the heart, and lessens arterial pressure by diminishing the cardiac irritability and vaso-motor tonus. The drug also reduces the temperature, which fact has been demonstrated by the experiments of Dr. Ott in addition to those previously made. It has been maintained that from its action upon the spinal cord, gelsemium is an antidote to strychnia. Dr. Davis made special experiments on dogs with a view to determining this point, and the result was to show that it was in no way antidotal; that in fact its action favored the more ready development of the symptoms of strychnia poisoning. The antidotes to gelsemium are alcohol and diffusible stimulants.

Referring to its therapeutic properties Dr. Davis discusses first, its action in malarial poisoning. His observation convinced him that gelsemium is not a direct antidote, either chemically or physiologically, to malaria, although it does have a wonderful effect over the disease, owing to the relaxing influence which it brings to bear upon the system, thereby increasing radiation and assisting in the elimination of morbific matters. From these properties he holds it to be the great adjuvant of the salts of cinchona. He does not believe it to be at all curative, in the sense that quinine is, and yet in many so-called chronic cases where the liver, kidneys, and entire excretory apparatus are torpid, it is more beneficial than quinine itself, its action being due, as already intimated, to its influence in stimulating the excretory apparatus to the throwing off of the morbid matter in the system.

In convulsive diseases, and particularly where the spasm is dependent upon reflex irritation, he knows of no remedy which so satisfactorily fulfils the indications. Its beneficial effects are particularly noticeable in the treatment of children who, from the peculiar sensitiveness of their spinal centers and increased reflex irritability, are more liable to convulsions than adults.

He reports an illustrative case in which the remedy was highly beneficial in meningeal inflammation. The patient was suffering from high temperature, dry tongue, rapid and small pulse, delirium and severe spinal disturbance. The slightest disturbance in the room or jar of the bed, would throw him into severe convulsions, accompanied by opisthotonos. Five drops an hour, of the fluid extract, until three doses were given, caused an amelioration of the symptoms. On the occurrence of another convulsion, at the end of three hours, he increased the dose to ten drops an hour; when, after three doses had been given, another slight convulsion occurred, he further increased it to 12 drops, at which it was continued for several hours, when the toxic symptoms again manifested themselves. The dose was then diminished, and the patient was kept under the influence of small doses for a week or more, and finally recovered.

Although gelsemium has been reported to act beneficially in tetanus, Dr. Davis is not inclined, from his experience, to attach much value to it in this affection. It has no beneficial action in epilepsy, although when given with the bromides it increases their efficacy. Notwithstanding the encouraging reports of its action in tic douloureux, or neuralgia of the fifth pair of nerves, his experience with it in this direction has not been such as to warrant him in recommending it.

From observations made on its action in cases of rattle-snake bite, in eastern Kansas, he is inclined to think that gelsemium is entitled to more thorough trial in such cases.

In the treatment of inflammatory diseases peculiar

to women, whether of an acute or chronic nature, Dr. Davis regards gelsemium as a remedy which merits a very important place in the physician's repertoire. It has a peculiarly relaxing effect over the uterus and its appendages. In dysmenorrhœa its beneficial effects are very noticeable, as they also are in the hard, rigid and unyielding os in parturition. In the congestion, irritation and inflammation of the pelvic viscera, the nervous centers have become so disturbed that the affections merit classification under the head of the neuroses, and in these the action of gelsemium is characteristic. Dr. Davis is of the opinion that if gelsemium were given a fair trial in this class of cases, the great majority of the long list of remedies and local applications with which patients thus afflicted are tortured, would be banished from the physician's armamentarium. Most of these affections, he argues, are due to insufficiency or unequal distribution of nerve force, with unequal distribution of blood. The nerve centres, being stimulated to a correct performance of their functions, a normal and equable supply of blood, with amelioration of the condition, follows. He reports, in detail, a number of marked cases of pelvic congestion and chronic inflammation in which the drug worked remarkable results. He holds that the influence of the spinal cord and the sympathetic ganglia, in the causation of the more common complaints of the uterus and its appendages, is not sufficiently recognized, and when recognized the action of gelsemium in relieving them, is not sufficiently familiar to the profession. The action of the drug directly on the nerve centers—spinal and sympathetic—by equalizing the circulation and giving tone to cell-power, relieves the congestion and inflammation of the parts under their control. On the whole, Dr. Davis paper is one which merits a careful consideration by the therapeutist.

The Rapidity of the Circulation of the Blood.

Dr. Robert Meade Smith, professor of comparative physiology in the University of Pennsylvania, recently read a paper before the College of Physicians of Philadelphia, which was subsequently published in the Medical and Surgical Reporter, in its issues of May 31st and June 7th, in which he presents a report of some interesting experiments conducted by himself with a view to ascertaining the time required by the blood for making one complete circuit of the body. His conclusions are somewhat at variance with the generally accepted opinions on this subject, and are worthy of careful consideration. The paper opens with a description and criticism of the method, that of Hering, which has heretofore been employed in determining this question. It consists in injecting into one of the jugular veins, towards the heart, a solution of some salt, whose presence in the blood can be readily recognized by chemical tests, and discovering how soon after its injection it appears in the blood coming from the corresponding vein on the opposite side of the neck. The accuracy of this method depends upon the correctness of two assumptions, namely, that the salt used has been carried mechanically by the blood, without diffusing through it, with the same velocity as the blood itself; and, secondly, that the velocity thus determined by the infusion method, is the mean velocity of the blood mass. Dr. Smith demonstrates that both of these assumptions are unwarrantable. He shows that the element of diffusion forms a considerable item in the rapidity with which the solution of salt completes the circuit of the body. In his method, which consists in the injection of defibrinated pigeon's blood, this source of error does not exist. The red blood corpuscles of the pigeon have a short diameter, smaller than the diameter of mammalian blood discs, and are thus not interfered with in their passage through the circulation of a mammal. Dr. Smith's apparatus is of a very ingenious and delicate order. His kymographion and electro-magnetic lever are so adjusted as to accurately record the pulsations of the animal being experimented upon. A collection of twenty-four watch-crystals is attached to a horizontal glass disc, which is uniformly rotated by clock-work at any desired speed. Into the watch crystals upon this disc, so rotating, flows the blood from the opposite jugular vein to that into which the pigeon's blood was injected, and the exact time of the discharge into each crystal noted. The examination of the blood as it was discharged into the watch-crystals reveals the appearance of the corpuscles of the pigeons' blood, and the time intervening between their injection into one jugular vein and the exit from the other being accurately determined by the kymographion, the time consumed by their circuit of the body is thus discovered.

In the first experiment, on a dog weighing 18 kilogrammes (about 40 lbs.), the time required by the pigeon corpuscles to pass from the left to the right jugular was 20 seconds. In the second experiment, the dog weighing 10 kilogrammes (about 22 lbs.), the circuit was made in 17 seconds, and the average time consumed in 10 experiments on dogs was 17½ seconds, as against 15 22-100 reported by Vierordt, as required by potassium ferrocyanide to make the circuit of the circulation in dogs of corresponding average weight.

In rabbits, the average time intervening between the injection of pigeon's blood and the appearance of the corpuscles, was 11 seconds, as against 6 9-10 seconds consumed in the passage of the potassium salt. We have here, then, a difference of nearly 15 per cent. in the case of the dog, and over 59 per cent. in the case of the rabbit, which must be accounted for through the diffusion of the potassium salt. The rapidity of circulation is greater in small animals than in large, not only on account of the shorter path to be traversed, as insisted upon by Vierordt, but because smaller animals contain, both absolutely and relatively, as to body weight, a smaller volume of blood, and since it has been shown that diffusion has something to do with the result, the salt will diffuse more rapidly through a small volume of fluid than a large one. This fact accounts for the difference in the diffusion as noted in the rabbit and the dog.

Blood moves more rapidly in the center of the blood vessel than at the sides, and the figures as noted above, must, therefore, be corrected so as to have them represent the mean circulation. Dr. Smith conducted another series of experiments with carmine, in order to determine the difference in the rapidity of the flow at the margin and in the center of the blood current. As a result of these experi-

ments, he places the average time to complete the circulation in a dog weighing 10 kilogrammes (about 22 lbs.) at between 25 and 30 seconds, as against 17½ seconds, the average time consumed between the injection of the pigeon's blood and the appearance of pigeon's corpuscles in the opposite jugular vein.

The paper then goes on to discuss the statement made by Vierordt, that moderate irritation of the vagi lengthens the time of circulation, by reducing the number of pulsations of the heart. Dr. Smith concludes from his experiments that while irritation of the vagus diminishes the frequency of the cardiac contractions, the contractions are more forcible, each one throwing out a sufficiently larger volume of blood to compensate for the diminished frequency. Irritation of the vagi does not, therefore, increase the length of time required to complete the circulation of the whole volume of blood.

The Treatment of Migraine.

There is no affection, a correct appreciation of the etiology and pathology of which is more essential to its successful therapeutics than migraine. It is only within comparatively few years that the stomach has not been held to be the *fons et origo malis*, and the name "sick-headache," has become too thoroughly engrafted in popular literature, to warrant the hope that the time is not distant when the people and, perhaps, also, a very considerable percentage of the profession, will not regard the affection as directly due to gastric disturbances, and "biliousness." The fact is, however, gradually dawning upon the great body of the profession, that the gastric symptoms in migraine occupy the relation of effect, and not cause, to the essential ailment. Such articles, as one contributed to the January number of the New York Medical Journal, by Dr. C. H. Hughes, lecturer on nervous diseases in the St. Louis Medical College, will have a salutary tendency, both directly in inculcating correct views as to the nature of the affection, and indirectly, in assisting to its successful therapeutics. Migraine, he states, is ordinarily the periodical protest of cerebral over-tax in the acutely exhausted, comparatively young brain of the milder neurotic subject. It is a temporary disturbance of the equilibrium between waste and repair in the higher cerebral centres, and comparative neuratrophia from mental overstrain, which expresses itself in neurotic subjects, like the outcry of an oppressed or famished nerve in neuralgia. It may, of course, be precipitated by other causes than cerebral overstrain, but hereditary tendency to weaken under a certain degree of overstrain on the part of the cerebral vaso-motor system, and the co-existence of that strain, which cannot be resisted, constitute the essentials of an attack of migraine. The sympathetic influences in an attack, pass downward to the stomach; nausea and emesis frequently follow, and the bowels sometimes move freely. The co-existence of nausea, followed by vomiting, and this by sleep and final relief, have given to migraine the synonym of sick-headache, but headache is not dependent upon a sick stomach,—the nausea is due to the sickness in the head. If the vomiting continues long enough, the migraine will, of course, cease with the cessation of vomiting. To make the vomiting effective, the stomach should be washed out with luke-warm water, until it is empty of its solid contents.

In the treatment of migraine, the wise physician will heed the strong hints which nature gives at the rational restorative-therapy. Every movement increases the bodily discomfort; hence the patient must be allowed to remain absolutely quiet. For the hot, aching eyeballs and the hot, painful head, the natural suggestion is a cold lotion and the exclusion of light. The hyper-sensitive ear, must not be jarred by sounds, and, in short, the irritated brain must have rest. During the attack bromides, if the stomach can be made to retain them, are always serviceable, and their retention is favored by their exhibition in peppermint-water, and minute quantities of creasote. They are excellent remedies for the relief of the restlessness and fidgitiness which accompany the attack. Dr. Hughes does not mention menthol as an external application, possibly from the fact, that the remedy had not, at the time of his writing, been prominently placed before the profession. It meets, in an admirable manner, the indications which Dr. H. seeks to meet by means of the evaporating ethereal lotion.

Dr. Hughes devotes a very large part of his paper to the prophylaxis of the attacks. He advises to this end a course of tranquilizing treatment calculated to promote and maintain nerve stability. To this end, the patient should be made well acquainted with the nature of his trouble, and instructed in the essentials to avert its recurrence. A mild unirritating course of constant cephalic galvanization in the intervals, repeated daily or on alternate days, is beneficial. A full dose of ammonium or potassium bromide, thirty to forty grains, or a minimum dose of arsenious acid should be likewise given nightly for many months, in many cases, and as often as three or four times a day for several days preceding the time of an expected attack. Guarana is also useful in the interim. Besetting sins, and moral and physical vices that tend to organic or nervous exhaustion, should be inquired into and remedied by discontinuance. The patient should have such treatment as any apparent departure from the standard of health as he may exhibit, may seem to call for.

Turpentine in Diphtheria.

This is the title of an elaborate paper read by Dr Conrad George, of Ann Arbor, before a recent meeting of the Michigan State Medical Society. Having had the usual unsatisfactory experience with the remedies in vogue, for the treatment of diphtheria, Dr. George, acting upon a suggestion received from Berl. Klin. Wochenschrift, determined to put the oil of turpentine to the test. The experience which forms the basis of his paper was confined to six cases, but these were of such marked symptoms, and so clearly demonstrated the effects of the remedy, that they are sufficient to warrant the profession in putting turpentine to a further test. A remarkable feature in the cases reported, is the size of the doses employed, and the toleration of it by the stomach. The oil was administered in doses of 20 drops to a child eight months of age, while in a lad 14 years of age two overflowing teaspoonfulls were given. The vehicle employed was milk. It was found necessary, occasionally, to discontinue the remedy or to very much reduce the size of the dose, on account of strangury which it

caused; the vesical irritation was, however, relieved by the exhibition of laudanum and the local application of fomentations.

Dr. George's experience corroborates that of Satlow, who reports (Jahrbuch für Kinderheilkunde, 1883,) 43 cases of severe forms of diphtheria treated with turpentine, with only one fatal case, that being of a sickly boy of five years, who died on the sixteenth day of the disease from paralysis of the heart, after all general local symptoms had subsided. Strangury, without the presence of albumen in the urine, was a frequent occurrence during the treatment, although it was of but temporary duration. Under the drug the membrane first became moistened and swollen, then the free edges became thinned out until a free surface remained, covered only with a thin, transparent film, which finally disappeared entirely. Dr. George suggests that turpentine is beneficial both through its powerful germicide property and through the activity to which it stimulates the kidneys, and, in some instances also, the bowels. It is eliminated through both the kidneys and the lungs, thus showing that it permeates the entire system, giving it an opportunity to act upon the materies morbi in the circulation, for diphtheria, he holds, must be regarded as a constitutional disease.

Dr. George's paper is both a valuable and a highly interesting one, but it is imperfect in that it does not state with sufficient definiteness the frequency with which the turpentine was administered. In reporting the results of any new treatment, care should be taken to indicate the minutiæ thereof. It is, for instance, important to know in the present instance, whether the reporter administered "two overflowing teaspoonsfulls" of the oil of turpentine once in three hours or once in twenty-four hours, or whether he gave this quantity in divided doses in a definite time. Few, we take it, will feel disposed to resort to this somewhat heroic medication without further information as to the details, which, we trust, Dr. George will see the necessity of furnishing.

The Benzoate of Sodium in the Treatment of Summer Diarrhœa in Children.

The Journal of the American Medical Association reproduces an abstract from the Bull. Gen de Therap. of an article by Dr. Guaita in the Gaz. Degli Ospitali, in which that writer considers the subject of the nature of the summer diarrhœa of children, and gives treatment thereof.

The article is so far imperfect in that it does not specify what the author distinctly understands as summer diarrhœa, although such symptoms as he details leads us to believe that he has reference to the affection popularly known in this country as "summer complaint," or cholera infantum. He regards the disease as caused by a special microbe introduced from without or developed in the alimentary canal during digestion. The predisposing causes, or the circumstances under which this microbe develops, are deficient diet, bad hygiene or excessive heat.

The remedy which Dr. Guaita has found most successful to the relief of the vomiting and diarrhœa in this complaint, is the benzoate of sodium, which, he claims, acts by its anti-fermentative property and its modifying influence on the intestines of the mucous membrane. In 53 cases, which he reports as occurring in children between the ages of six months and two years, the use of this drug was so uniformly successful as to be followed by recovery in every instance. His method of describing it is as follows: After the use of a purgative of calomel or jalap, he gives from four to six grammes (a drachm to a drachm and a half) of the benzoate of sodium in 100 drachms (three ounces) of water during 24 hours. This treatment is continued for two days. On the third day he gives a slight purgative of magnesia or manna, when the use of benzoate is resumed. At the end of two days an improvement in the character of the stools is very noticeable, with but little fetor and the vomiting is checked. During the treatment the child is strictly dieted, taking only a little lemonade and a few spoonfuls of good wine, milk and soups are absolutely interdicted, as Dr. Guaita finds that milk, particularly that of cows, ferments readily in the stomach and increases the trouble. Children at the breast are allowed to nurse four times in 24 hours. We would suggest, that had the doctor employed pancreatic extract for preparing the milk for the stomach, his objection to that diet might not have been raised.

Picrotoxin in the Treatment of Night-Sweats of Phthisis.

Too frequently in the treatment of phthisis the physician's best efforts must be confined to alleviating the symptoms, and, with the prospect of inevitable death before him, hope only to secure tolerance of existence on the part of the patient, and euthanasia. Among the more distressing symptoms or complications which may demand attention are the night-sweats. For the relief of these a great variety of remedies has been from time to time suggested. Drs. Westbrook ann Platt, physicians to the Department of Diseases of the Chest in St. Mary's General Hospital, of Brooklyn, New York, contribute to the New York Medical Journal the results of their experience with several of the more recent drugs in the many cases in which they were furnished an opportunity for carefully trying them. The drugs which they used in the greatest number of cases was picrotoxin. The result of its use in nine cases was to entirely check the sweats in six cases and to relieve them greatly in two. In one very troublesome case it seemed to have no effect whatever. Their method of administering it was either hypodermically or by the mouth, at intervals of two to ten days, and in doses of from $\frac{1}{60}$ to the $\frac{1}{30}$ of a grain. It was found in some cases that $\frac{1}{20}$ of a grain hypodermically, at night, would control the sweats for ten nights following. These results are corroborative of a favorable report made by Dr. Murrell, of London, who had but one failure in twenty cases, and found the effect to run about ten days. Dr. Murrell, however, accomplished his results with much smaller doses, giving from the $\frac{1}{180}$ to the $\frac{1}{60}$ of a grain only. Atropine was also employed in a number of cases, but although it was tolerably successful as regards the sweats, it was objectionable owing to the annoying dryness of the throat, which followed its use.

Ipecac in Dysentery.

Notwithstanding the very positive testimony to the value of ipecac in large doses, in dysentery, which

has from time to time been adduced, this method of treating that disease has not become popular. There is, we think, a very general impression among practitioners of this latitude that the drug is beneficial only in more Southern climates, and, for this reason, it has been accorded a very limited trial in more northern countries. Knowing the very decided emetic properties of the drug, many, too, have, doubtless, been backward in employing it for fear of exciting uncontrollable emesis, than which there could be nothing much more deleterious in an attack of severe dysentery. Dr. Joscelyn Seaton, however, in an article in a recent number of the *Lancet*, maintains that there is comparatively little danger of exciting vomiting when the drug is properly administered. He, moreover, regards it as the most useful of all remedies in dysentery, his opinion being based on an extensive experience, having, in his capacity as Government Medical Officer to the Emigration Department, Natal, treated an average of twenty patients daily. His method was briefly as follows:

Denial of all fluids for, say, two hours; then insert an opium suppository; twenty minutes afterwards apply a large linseed poultice sprinkled with mustard, to the epigastric region, followed in ten miuutes by 40 grains or upwards of powdered ipecac, inclosed in a wafer or tissue paper. Not more than a dessert spoonful of milk, or thick rice water, is given to assist deglutition, the recumbent posture, quietude and denial of all fluids, for at least two hours subsequently, are strictly enforced. Used in this manner, he asserts that ipecac proved in hundreds of cases no less a specific in dysentery than quinine in the equally prevalent disease, malarial fever, in the region in which he gained his experience.

Mercury in the Treatment of Pleurisy.

Mercury was formerly more generally regarded as an antiphlogistic agent than in more recent years, since the modification of treatment based upon more advanced pathology of the inflammatory process, has prevailed. Doubtless, the indiscriminate use and consequent abuse of this active drug, had much to do in causing it to fall into desuetude. Dr. J. E. MacDougall, consulting physician to the Cumberland Infirmary, makes a strong plea for its revival in the treatment of inflammations of the serous membranes, and particularly in pleurisy, in an article which he has contributed to the June number of the Practitioner. After citing several cases in which the inunction of unguentum hydrargyri brought prompt relief after the failure of the antiphlogistics in vogue, he quotes from an article by Dr. Thorowgood, in which his preference for mercury in this class of cases is fully corroborated. He maintains that its use in the acute stage of the disease, until the gums are slightly touched, not only favorably influences the course of the inflammation, but also tends to prevent the effusion and hydrothorax which are prone to follow under the usual methods of treatment. In such cases, also, in which effusion into the pleural cavity has taken place, the inunction of mercurial ointment facilitates absorption more satisfactorily than does the employment of other remedies. He testifies also to the value of mercury in the meningitis that succeeds injuries to the head, and in the peritonitis, which so often follows the operation for strangulated hernia.

The Therapeutic Properties of Buttermilk.

Buttermilk, so generally regarded as a waste product, has latterly been coming somewhat into vogue not only as a nutrient, but as a therapeutic agent, and in an editorial article the Canada Lancet, sometime ago, highly extolled its virtues. Buttermilk may be roughly described, as milk which has lost most of its fat and a small percentage of its casein, and which has become sour by fermentation. Long experience has demonstrated it to be an agent of superior digestibilty. It is, indeed, a true milk peptone, that is, milk already partially digested, the coagulation of the coagulable portion being loose and flaky, and not of that firm indigestible nature which is the result of the action of the gastric juice upon sweet cow's milk. It resembles koumiss in its nature, and, with the exception of that article, it is the most grateful, refreshing and digestible of the products of milk. It is a decided laxative to the bowels, a fact which must be borne in mind in the treatment of typhoid fever, and which may be turned to advantage in the treatment of habitual constipation. It is a diuretic, and may be prescribed with advantage in some kidney troubles. Owing to its acidity, combined with its laxative properties, it is believed to exercise a general impression on the liver. It is well adapted to many cases where it is customary to recommend lime-water and milk. It is invaluable in the treatment of diabetes, either exclusively or alternating with skimmed milk. In some cases of gastric ulcer, and cancer of the stomach, it is the only food that can be retained.

Coca Erythroxylon.

The recognition of coca in the last revision of the United States Pharmacopœia has apparently had the effect of calling to it renewed attention, and it must be gratifying to those through whose efforts, or on whose claims, the drug won recognition, to have the claims which they made for it so thoroughly corroborated. In an article in the New York Medical Journal, Dr. H. D. Hicks, of Boston, gives a detailed account of the use of coca and its effects, both on himself and patients to whom he administered it. His conclusions are briefly summarized as follows:

It prevents and relieves fatigue, and in those cases of back-ache accompanied by highly colored urine, with excessive amounts of urates and uric acid, it is of great service. It relieves shortness of the breath dependent upon weakness of the muscles of respiration. It relieves palpitation of the heart, due to dilatation or weakness of the heart muscle, not complicated with valvular lesion. It renews the vigor of the intellect and relieves mental exhaustion, rendering the flow of thought more easy and the reasoning powers more vigorous. It dispels the blues, leaving the mind calm. By its use the depression following an indulgence in alcoholic liquors is relieved, and it invigorates the exhausted sexual function due to excessive venery. It destroys the craving for alcohol, and in small doses, is useful in sick headache, resulting from over-exertion. Its habitual use as a part of the daily diet conduces to mental clearness and activity, freedom from fatigue, and sound sleep.

Hamamelis in the Treatment of Varicose Veins.

Varicose veins have been one of the opprobria of medicine, and any new treatment which promises satisfactory results, without the necessity of resorting to surgical interference, will be cordially received. In a paper read before the Philadelphia County Medical Society, sometime ago, Dr. J. H. Musser, spoke very favorably of his experience in this affection with hamamelis, given internally and applied locally, with the application of a roller bandage. He reports, in addition to a case which came under his immediate supervision, results communicated to him by a number of physicians who had tried the remedy at his instance. The drug may be given in doses of a half-drachm to a drachm of the fluid extract. The distilled extract seems to have been preferred for local application. The internal administration of the drug is also useful in the treatment of the disgusting ulcers, which are the result of varicose veins. The remedy being an excellent astringent and operating also as a tonic, is useful in correcting the constitutional derangement, which is usually a complication if not, indeed, the immediate cause of the local trouble.

It may be well to mention in this connection, the fact of the undoubted value of hamamelis in the treatment of hemorrhoids. Thirty-drop doses of the fluid extract, given three times a day will be found to exert a beneficial, if not, indeed, a curative influence on hemorrhoidal tumors.

Growing Pains.

Growing pains are among the minor ailments, which although discomforting are not usually considered of sufficient magnitude to warrant therapeutic interference. Bouilly, however, in the Gazette des Hôpitaux, regards the subject as of sufficient importance to warrant him in devoting an article to it. He is inclined to classify the cause of these pains as a light form of osteo-myelitis, which runs its course without suppuration and is most prevalent at the time of the most rapid growth. Comparison may also be suggested between it and rickets, being due to the faulty circulation of the bones caused by imperfect development. The short and flat bones are seldom affected, the long bones being the usual seat of pain, which occur chiefly near the juxta-epiphyseal zone, most frequently near the lower epiphysis of the femur.

In the lighter form the symptoms pass in 36 hours. In severe cases there is accompanying fever which may last several days and even be attended with some other typhoidal symptoms, followed by the sudden fall of the fever or recovery. The disease may take a chronic, sub-acute form which may last for many months. The prognosis is, however, favorable. Quinine and tonics are recommended. The disease may appear from the age of five years to the twenty-first year, and the symptoms may be brought on by long walks, strains or fatigue.

Resorcin in the Treatment of Whooping Cough.

Dr. Mon Carvo, of Rio Janeiro, has written a monograph on whooping cough, in which he gives the results of rather an extensive experience in the treatment of this disease, from which he deduces the following conclusions:

First: Whooping cough, the nature of which until recently was the subject of the greatest dispute, seems from the latest clinical observations and microscopical examinations, to belong to zymotic diseases. Second: The disease seems to be due to the presence of micrococci, which develope themselves to an alarming degree in the mucous membrane of that part of the larynx situated below the glottis, and infiltrate the epithelial cells. Third: Resorcin applied directly to the mucous membrane of the larynx not only diminishes, in a very short time, the brief attacks of coughing in cases in which it is employed, but also decidedly cuts short the duration of the malady. His method of applying resorcin is by an atomizer. When this cannot be procured the drug should be blown in the usual manner into the larynx by the aid of a quill. The only trouble is that whooping cough is apt to atttack young children, in whom the direct application to the larnyx is difficult to execute. The internal administration of resorcin is, however, utterly useless.

Glycerine as a Remedy in Indigestion.

The editor of the Medical Index has found the exhibition of glycerine to be attended with satisfactory results in two forms of indigestion, particularly. 1st, in that form of irritative dyspepsia, which is the common result of rapid eating and imperfect mastication. The usual symptom in such cases is distress coming on half-an-hour or an hour after meals. There is also duodenal catarrh and dyspepsia, with perhaps, slight jaundice and other symptoms, referable to, and explained, by the irritated mucous membrane of the stomach and duodenum. The indications in such cases are well-defined. The food must be prevented from undergoing mischievous chemical changes before it can be acted upon by the enfeebled digestive organs, and a remedy must be given, which shall exert a local soothing effect upon the irritated mucous surface. Glycerine, theoretically, from its preserving and emollient properties, fulfils these indications, and in practice our contemporary has not been disappointed in its use. A somewhat similar condition to the above is met with among children shortly after birth, after a trial of feeding them solid food has been followed by colic and soothing syrup. In such cases the child is apt to have greenish discharges, occasionally specked with blood. Glycerine will be found an admirable remedy in these cases.

Salicylate of Bismuth in the Treatment of Typhoid Fever.

The Centralblatt für Klinische Medicin contains a report of a number of cases of typhoid fever treated by Dr. H. Desplats, with salicylate of bismuth, with very satisfactory results. His method of preparing the salt is to mix one part of salicylic acid with two parts of bismuth. From 75 to 90 grains a day of this salt caused a reduction of temperature of about five degrees, beginning soon after the administration of the remedy. A larger dose than this was seldom given. When the drug was given continually for several days the reduction of temperature became permanent. The patient suffered at the

time a slight loss of strength, but Dr. D. never saw any dangerous degree of weakness occur. The remedy has no apparent influence upon the other symptoms than those of pyrexia, althpugh in certain cases it seems to have an aborting effect upon the disease. The author prefers it to sodium salt, as it is less soluble, and probably on that account is less quickly excreted.

Santonin for Gleet.

The fact that many important discoveries are the direct result of accident, finds another illustration in the paragraph, now going the rounds of the press, and originally taken from the Lancet, containing a description of the effects of santonin on a case of gleet. The patient consulted Dr. William Anderson, on account of lumbrici, from which he was suffering. The doctor prescribed santonin for the parasites, and meeting the patient sometime afterwards, was told by him that the medicine had not only killed the worms, but had dried up the gleet from which he had long been suffering, in spite of treatment with the usual remedies. The effects of santonin on the urine are, of course, familiar to all, and a trial of the remedy in obstinate cases of gleet will, doubtless, be given it by those who may chance to read this note. Dr. Anderson recommends it to be given in a dose of five grains, rubbed up with equal quantity of sugar of milk, and taken twice a day, fasting, in milk.

Pepsin and Pancreatin in the Treatment of Gout.

Gout is so generally the result of impaired digestion, that the digestive ferments have been latterly quite extensively employed in its treatment, and Dr. Girard, in an article quoted by the Journal of the American Medical Association, gives a detailed report of a case, in which excellent results followed the exhibition of pepsin and pancreatin. Commencing with peptonized food, on which the patient was continued for two days, he was then put upon pancreatin, of which he took 60 centigrammes (10 grains) after each meal. The sense of heaviness in the stomach, which had previously oppressed him, and the somnolence after meals, disappeared permanently. The inflammation of the articulations completely disappeared after six months' treatment, and at the time of writing, the improvement was apparently permanent.

Witch Hazel in Menorrhagia.

The Medical Record quotes from an article by Dr. Henry M. Chute, in the South African Medical Journal, in which he reports the results of his use of hamamelis virginica in the treatment of the menorrhagia, which is a very frequent ailment of women in Cape Colony. He administered the drug in doses of half a teaspoonful of the fluid extract in sugared water, two or three times a day. He says it acts so quickly that it is not necessary to anticipate the flow, and when the menstruation has lasted the ordinary time and is not closing naturally, the remedy will effectually restrain it; but after the hemorrhage has ceased, there is no advantage in continuing it. Another good result of the drug is observed in dysmenorrhœa, in which it, in a very marked, quick manner, relieves the pain.

Gelsemium for After-Pains.

The remedies which have been recommended for after-pains are legion, for they are many. That drug which shall effectually relieve painful contractions of the uterus after the expulsion of its contents in parturition, is a desideratum which has never been successfully supplied. It is true, that the patient may be so narcotized as to obtund all sense of pain, but the effects of the narcotic are such as it is always desirable to avoid, especially at that important period in the woman's life. The latest remedy, for which a trial has been solicited, is gelsemium. Dr. Holt declares, in the New York Medical Journal, that given in doses of a fraction of a drop of the fluid extract, frequently repeated, the remedy has yielded excellent results in his experience.

A Specific for Hiccough.

Dr. Henry Tucker recommends, in the Southern Medical Record, the use of the following very simple remedy in the treatment of hiccough, namely: Moisten granulated sugar with good vinegar. Of this give to an infant from a few grains to a teaspoonful. The effect, he says, is almost instantaneous, and the dose seldom needs to be repeated. He has used it for all ages—from infants of a few months old to those on the down-hill side of life, and has never known it to fail. The remedy is certainly a very simple one, and although no theory is advanced to account for its wonderful action, it merits trial.

Book Reviews and Notices.

Bacteria By Dr. Antoine Magnin, Licentiate of Natural Sciences, Chief of the Practical Labors in Natural History to the Faculty of Medicine of Lyons, Laureate of the Faculty of Medicine of Paris (Silver Medal, 1876); General Secretary of the Botanical Society of Lyons, Member of the Botanical Society of France, etc.; and George M. Sternberg, M. D., F. R. M. S., Major and Surgeon U. S. Army, Member of the Biological Society of Washington, Late Member of the Havanna Yellow Fever Commission of the National Board of Health, Corresponding Member of the Epidemiological Society of London, etc.

New York: William Wood & Co., 56 and 58 Lafayette Place.

The work of Dr. Magnin, which was published in Paris, 1878, and translated by Dr. Sternberg in 1880, gave an admirable resumé of the knowledge of the bacteria at that time. Great progress has been made since then, and the field has been thoroughly scarified, if not deeply ploughed. In fact so thorough has the subject been investigated that to the ordinary observer but little remains to be discovered. Great progress has also been made in chemical re-agents, as germicides and anti-septics, and the *rôle* of bacteria in infectious diseases. The object of the author has been to place before his readers this progress, and we should judge it fairly represents the present status of the science.

It is not our purpose to give our readers a critical resumé of the work, but to give them some idea of what it is. Others more critical may do the former. Part first, on The Morphology of the Bacteria, and part second, on the Physiology of the Bacteria, are from the pen of Dr. Magnin, as translated by Dr. Sternberg. Part three, on Technology; part four, on Germicides and Antiseptics; part five, on Bacteria in Infectious Diseases; and part six, on Bacteria in Surgical Lesions, with a bibliography, are by Dr. Sternberg. Having been engaged by the National Board of Health in the investigation of yellow fever at New Orleans and Havana, the author prepared a series of photo-micrographs which, by permission of the Board, are presented in this volume, thereby adding much to its value. Of these there are eight plates and twenty-seven representations—besides other plates. The photo-micrographs are from the Heliotype Printing Co., of Boston. The author fears the Heliotype plates may not appear in subsevuent editions, as they add very greatly to the cost of the book.

The work is a small octavo of 486 pages, handsomely printed and containing a full index. We must say to all those interested in the subject, that the author has given much information, and, from our own standpoint, we can cordially commend it.

Students' Manual of Electro-Therapeutics, embodying lectures delivered in the course of therapeutics at the Woman's Medical College of the New York Infirmary. By R. W. Amidon, A.M., M.D., secretary of the American Neurological Association, Member of the New York Neurological Society, of the Academy of Medicine and of the New York pathological Society, Leeturer on Therapeutics at the W. M. C. of the N. Y. Infirmary, etc., etc.
G. P. Putnam's Sons: New York, 27 and 29 W. 23rd street. London: 25 Henrietta St., Convent Garden, 1884. Detroit: Phillips & Hunt.

Our author informs his readers in his preface that "This little book is presented to the medical public, chiefly as a protest against the mysticism and charlatanry which have ever hung around the literature and practice of Electro-Therapeutics."

To this end the aim of the writer is, 1st. "To present that amount of the subject of Electro-Therapeutics necessary to the proper understanding of the construction and use of medical batteries.

2nd. "To point out the commoner gross physiological effects of electricity.

3rd. "To outline the methods of Electro-diagnosis.

4th. "To determine the kind of electricity, and its mode of application indicative in different pathological states"

We judge the author has consummated what he set out to do in a very satisfactory manner, and hence we can commend the book to our readers.

Second Annual Report of the Provincial Board of Health of Ontario. Being for the year 1883. Printed by order of the Legislative Assembly, Toronto.

This is a volume of 430 pages, and gives a full account of the doings of the Provincial Board of Health, of whom all are doctors save one member, and he is a civil engineer. Evidently the board have not been idle, from the amount of matter which forms the volume. Our Canadian friends of Ontario are alive to proper sanitation and we cannot but commend the Board for its industry. Our thanks must be due to either Dr. Oldright, Chairman, or Dr. Peter H. Bryce, Secy.

We have learned that owing to pressing engagements, Dr. Oldright has resigned the chairmanship, and Dr. Chas. W. Covernton, of Toronto, has taken his place.

Quarantine and Sanitary Operations of the Board of Health of the State of Louisiana During 1880, 1881, 1882 and 1883, by Joseph Jones, M.D., President of the Board of Health of the State of Louisiana. Introduction to the Annual Report of the Board of Health to the General Assembly of the State of Louisiana, 1883-4. Baton Rouge, La.: with compliments of Dr. Joseph Jones, President.

This report gives all the facts relating to the History, Theory, and Practice of Quarantine, and to the measures instituted for the arrest and exclusion of contagious diseases, and especially yellow fever, from the valley of the Mississippi.

The Report is an interesting and valuable one, and we presume Dr. Jones would kindly furnish a copy to anyone interested in the subject.

PAMPHLETS AND ANNOUNCEMENTS.

Michigan College of Medicine. Affiliated with the Medical Council of Great Britain. (Member of the American College Association.) Announcement for session of 1884-5. Corner of St Antoine and Catherine streets and Gratiot ave., Detroit, Michigan. Regular session begins on the first Tuesday in September, and will continue six months. Send to Dr. J. B. Book, registrar, 303 Jefferson ave., Detroit, for a copy of announcement.

On Paroxysmal Fever—Not Malarial. By J. Hilusser, M.D., Physician in charge of the Medical Dispensary of the Hospital of the University of Pennsylvania, Pathologist to the Presbyterian Hospital. Reprint from the proceedings of Philadelphia County Medical Society.

17th Annual Announcement and Catalogue of the Detroit Medical College, Detroit, Mich., 1884-5. Regular session begins Wednesday, September 10th, and closes March 5th, 1885.

Med. Dept, Arkansas Industrial University, 6th annual announcement, session of 1884-5, Little Rock, Ark. Term begins October 1st, and continues 20 weeks.

Quinine Sub-Cutaneously Administered. A paper read before the Washtenaw Co. Medical Society by A. F. Kinne, M. D., Ypsilanti, Mich., April 11, 1884.

The Ovarian Cell, Its Origin and Characteristics, by T.M. Drysdale, A.M., M.D., Philadelphia, Pa. Reprint from vol. III Gynecological Transactions.

3rd Year of the New York Post-Graduate Medical School and Hospital, 226 East 20th st. Session of 1884-85 opens Oct. 1 and terminates Jan. 2, 1885.

California Medical College, (Eclectic), 6th annual announcement, Oakland, California. Term begins November 3d, and continues six months.

24th Annual Announcement of the Bellevue Hospital Medical College, foot of East 26th st., New York City. Session begins Sept, 17, 1884.

20th Annual Announcement of the Chicago Medical College. Session of 1884-85 begins Tuesday, Sep. 23rd, and closes March 24th, 1885.

38th Annual Announcement of Starling Medical College, Columbus, Ohio. Session of 1884-85. Regular course begins Sept. 10th.

Med. Dept., Niagara University, Buffalo, N. Y. Session of 1884-5. Term begins October 1st, 1884, and closes Tuesday, March 24th, 1885.

Therapeutic Progress

Manaca in the Treatment of Rheumatism.—During the past year I have used the fluid extract of manaca in the treatment of thirty five cases of rheumatism, and have come to regard it as a valuable remedy in certain forms of this disease. The drug was first brought to my notice by Dr. John H. Ripley, who had prescribed it in private practice, with very satisfactory results.

As the information to be gathered concerning the action of the drug was rather indefinite, it was decided to note its effect upon persons in health, before commencing its use in disease. Accordingly, two healthy men were given twenty drops of the fluid extract, five times daily for one week. The only appreciable effect was an increase in appetite and a slight "valerian-like" odor of the urine; otherwise this secretion remained unchanged. The pulse and temperature were unaffected, and no abnormal sensations were produced.

The drug was now prescribed for patients suffering with various forms of rheumatism. My cases differed widely in occupation, habits, and social position, some being private patients, some inmates of St. Joseph's Hospital, while others were treated at the New York Polyclinic. The ages ranged between eleven and fifty-eight years. The sexes were about equally represented. The dose of the fluid extract —which was that prepared by Parke, Davis & Co.— was from half a drachm to three drachms a day. In no case did the drug disturb the digestion, while in several instances the tongue cleared and the appetite improved during its administration. In about one-eighth of the cases frontal headache or a sense of fulness in the head developed after the medicine had been pushed for several days.

Manaca was used in but two cases of acute articular rheumatism with high temperature; in both it absolutely failed to relieve the pain or modify the fever.

In cases of chronic rheumatism it frequently gave relief, and in a few instances all rheumatic symptoms slowly disappeared. In this class of patients my results would probably have been better had the dose been larger, as Dr. W. S. Gotthell reports (in the Medical Record of September, 8, 1883,) seven successes out of twelve chronic cases, all having been treated with large doses of the drug. The doctor usually gave six drachms of the fluid extract per day, and occasionally as much as an ounce and a half in twenty-four hours:

By far the most satisfactory results, in my experience, were obtained in cases of subacute rheumatism, in which there was little or no rise in temperature. Fourteen patients suffering with this form of the disease were treated. Twelve recovered and two received no benefit whatever.

The following are histories of the cases of this class:

CASE I. *Rheumatism of six weeks' duration: recovery in one week; two relapses.*—R. J——, twenty-one years of age, applied for treatment February 12th, stating that for six weeks he had been unable to work on account of rheumatism in all the larger joints. This was his first attack of the disease. The knees were the original joints involved, but the pain and swelling had constantly shifted from one articulation to another, at the same time increasing in severity, so that now it was difficult for him to walk even a short distance. Examination showed moderate redness, swelling and tenderness of the ankles, left knee, and right elbow. The patient's general condition was excellent. Temperature 100 3-4°. No cardiac complication present. Manaca given in twenty-drop doses four times a day.

February 14th.—Considerable improvement has taken place. Both swelling and redness are rapidly diminishing. Continue treatment.

February 19th.—The patient expresses himself as perfectly well, being entirely free from rheumatic symptoms. Ordered to continue manaca in connection with tincture of iron for ten days longer.

February 28th.—Patient returns, complaining of the same trouble, which came on yesterday while working in a newly plastered room. His ankles and left knee are red, hot, and swollen. He has taken no medicine since last seen, as he considered it unnecessary "to drug himself when he was well." Manaca ordered as before.

March 5th —All symptoms have again subsided, and the patient is at work: He refuses to continue treatment, as he holds that "medicine is for the sick, not the well."

April 2d.—He has remained in perfect health up to two days ago, when the old enemy again attacked the ankles and knees. These joints are swollen and tender to-day. Manaca as formerly.

April 4th.—Rheumatism has subsided, and the young man is now willing to continue any medicine prescribed. Manaca and iron tincture are to be kept up for two weeks.

May 1st.—There has been no further relapse.

CASE II. *Rheumatism of thirty-six hours' duration. Recovery in one week.*—R. E. C——, aged thirty-three; actress. Patient was first seen February 11th, and had then been in bed for thirty-six hours, suffering with an attack of rheumatism which had involved in rapid succession the left shoulder, elbow, both wrists and ankles. The joints of the upper extremities were swollen, hot, and exceedingly tender. Temperature, 101°. The patient was thin, anæmic, and in very poor general condition. Considerable cardiac hypertrophy and a well-marked mitral regurgitant murmur were noted. Thirteen years before she had "rheumatic fever with rheumatism of the heart," confining her to bed for about two months. Since had often had mild attacks of the articular affection. Cardiac palpitation had at times been troublesome. A saline laxative, to be followed, by twenty drops of manaca, five times daily, was ordered, and the affected joints wrapped in cotton.

February 14th.—The patient has been very comfortable for twenty-four hours, and rheumatic symptoms are rapidly subsiding. The temperature is normal. Treatment continued.

February 18th —Recovery is complete. Manaca and iron tincture are to be continued for two weeks.

March 15th.—There has been no relapse.

CASE III. *Rheumatism of three weeks' standing; recovery within a week; relapse.*—M. W——, aged twenty-five; porter. Patient came under observation February 19th. He had then been unable to attend to business for three weeks on account of rheumatic pains and stiffness in knees, elbows, ankles, and wrists. For two days the right knee had been red, swollen, and somewhat tender; a week previous the elbows were in the same condition; and before that the right ankle had been the troublesome joint. His general condition was fair. Temperature normal. He never had rheumatism before, but both parents suffered from the disease. Ordered manaca in fifteen-drop doses, five times daily.

February 25th.—All his symptoms have subsided and he is at work. Is to continue treatment one week.

March 2d.—Patient returns with his former complaint in both ankles and left wrist. He neglected taking his medicine as directed, thinking the precaution unnecessary. Last evening, after exposure, the present attack came on. Manaca as before.

March 5th.—Patient is in good condition once more. Ordered to continue medicine for ten days, and then gradually diminish the dose.

CASE IV. *Rheumatism of five weeks' duration; recovery in five days.*—M. S——, aged thirty-five; domestic. This servant was first seen on February 21st, having then had rheumatism for five weeks. It had shifted from one articulation to another, until nearly every joint, had in turn, been stiff and painful, but never inflamed. In spite of the usual anti-rheumatic remedies she had not improved. Four or five years ago before, she had a similar attack. Her

general condition was excellent. Manaca in fifteen-drop doses, four times daily, was ordered.

February 23d.—Considerable improvement has taken place already. Continue treatment.

February 26th.—Reports entirely free from rheumatism and feeling very well. Ordered to continue medicine one week longer.

CASE V. *Rheumatism of six weeks' duration; recovery in ten days.*—E. O'C——, aged forty-nine, housekeeper. The patient was first seen February 26th, having then been suffering for six weeks with subacute rheumatism involving the knees, elbows, and wrists. For about two months she had had more or less supraorbital neuralgia and been greatly troubled with acid dyspepsia. For three years she has been subject to subacute rheumatic attacks. Her general condition was fair, but anorexia and insomnia were complained of. The knees and elbows were stiff and tender, but no swelling was present. A saline laxative, followed by twenty drops of manaca four times daily, was ordered.

February 28th.—No improvement in the condition of joints. Appetite and digestion are a little better. Continue treatment.

March 2d.—Joints are much better, but the patient complains bitterly of lumbago, which came on as the joints began to improve. Continue manaca, and apply sinapisms over the lumbar region.

March 6th.—Reports free from both lumbago and rheumatism to-day. Is put upon full doses of iron tincture, to be continued for one month.

April 15th.—The patient was looked up to-day. She has had no return of her former troubles, but keeps a supply of manaca on hand for immediate use in case of returning rheumatic twinges. She is also treating several of her rheumatic friends with the remedy.

CASE VI. *Rheumatism of two days' standing; recovery in four days.*—C. E. K——, aged thirty-two, cutter. The patient was being treated for phthisis when, upon February 28th, he was attacked with pain, tenderness, and stiffness in both shoulders. Within twelve hours these symptoms shifted from the right shoulder to the elbow and wrist. As his lung trouble was progressing favorably it was decided not to interrupt the antiphthisical treatment, and a stimulating liniment only was ordered for the affected joints.

March 2d.—The rheumatism is worse. Last night the patient was very restless from joint pain. Give manaca in fifteen drop doses every three hours. Stop all other medicines.

March 6th.—Rheumatism had steadily improved, and to-day is fairly gone. Stop manaca and return to former treatment.

March 31st.—There has been no return of rheumatism.

CASE VII. *Rheumatism of two months' duration; recovery in one week.*—J. C——, aged twenty-three, engineer. Patient applied for relief February 28th, complaining of soreness and stiffness in the muscles of the lumbar region, also of well-marked lameness in both feet and ankles. The ankles, insteps, and toes were swollen and tender on pressure; slight redness but no heat was present. No other joints were involved. The young man had several previous attacks of lumbago, but never had articular rheumatism until two months before coming under observation. During those months his lameness gradually increased, although in fine weather he was able to get about quite well. His general health was good in spite of a free indulgence in tobacco and alcohol.

Total abstinence and fifteen drops of manaca five times daily were ordered.

March 3d.—Reported somewhat relieved of rheumatism, but suffering with a severe frontal headache, which may be due to the medicine or to beer. He has taken both faithfully. Ordered a saline laxative and manaca as before.

March 7th.—Rheumatic and head symptoms have subsided and the patient has returned to work. Is to continue treatment for one week and report any relapse.

CASE VIII. *Rheumatism of three weeks' duration; manaca a total failure.*—M. H——, aged thirty-five, domestic. For fifteen years this patient has had repeated attacks of pain and stiffness in all the larger joints, but always unaccompanied by inflammatory symptoms. During these attacks an approaching storm renders her almost helpless, while in fine weather she can do ordinary housework fairly well. Her habits were very bad. In fact she was intoxicated when first seen, and was suffering from gastro-intestinal catarrh, evidently due to a liberal use of beer and whiskey. She was free from rheumatism at the time. Treatment was directed against the gastro-intestinal disorder. Upon March 1st she began to complain of general joint pain and stiffness, but as her stomach was still irritable it was not deemed best to institute anything in the way of internal anti-rheumatic treatment. The troublesome joints were rubbed with a stimulating liniment and covered with flannel.

March 13th.—The gastric trouble is much better, but no improvement in the rheumatism has taken place. Manaca in twenty-drop doses five times daily is ordered.

March 15th.—Pains are more troublesome. Rheumatism increasing in spite of improved general condition. Continue treatment.

March 19th.—No improvement. Continue treatment.

March 23d.—Rheumatic symptoms are decidedly worse. Stop manaca; try a mixture of potassium, iodide, and colchicum wine.

April 10th.—Patient made a very satisfactory recovery upon this treatment.

CASE IX. *Rheumatism of four weeks' standing; recovery within two weeks.*—H. M. S——, aged forty-five, artist. The patient was first attended for rheumatism upon April 14th, and had then been troubled for about one month with aching and stiffness in all the larger joints. An approaching storm increased these symptoms so as to confine him to his room, while in fine weather he was out of doors, free from pain but never quite free from stiffness. In former years he had similar attacks, but of shorter duration. His appetite and general condition were poor. Pills of iron, quinine, and strychnine, with twenty drops of manaca four times daily, were prescribed.

April 17th.—Patient thinks he is a little better, but seems more stiff and feeble than at the last visit. Continue treatment.

April 21st.—Marked improvement has taken place during the last two days. Only trifling stiffness now remains. Same treatment.

May 1st.—Rheumatism has given no trouble for a week. Stop manaca and continue tonic pills.

May 15th.—No return of the disease up to date.

CASE X. *Rheumatism of four days' duration; recovery in two days; relapse.*—T. McK——, aged forty-four, merchant. Patient had been under treatment for phthisical consolidation of the left apex for several weeks. Upon May 6th he was exposed during a profuse night-sweat, and the following day was confined to bed with pain and stiffness in all the larger joints, especially the knees. He had a similar attack years before. A mixture of potassium iodide, and colchicum wine was ordered, and the limbs wrapped in flannel.

May 10th.—The rheumatism is no better, and the patient is troubled with anorexia and insomnia, being unable to take his usual exercise in the open air. Treatment changed to manaca, twenty drops six times daily.

May 12th.—Recovery from rheumatism is complete. Discontinue manaca and return to antiphthisical treatment.

May 16th.—A relapse occurred to-day, and patient is confined to bed. Manaca as before.

May 21st.—Recovery is again complete, and manaca is to be continued with other drugs for a couple of weeks.

June 20th.—No further relapse has occurred.

CASE XI. *Rheumatism of two days' standing; recovery in six days.*—M. R——, fifty-two years of age, mason. When first seen upon June 15th the patient had been confined to bed for two days with his first attack of rheumatism. The knees, especially the right, were hot, swollen, and exceedingly painful on motion and pressure. The ankles, elbows, and wrists were also involved, but less severely. Temperature normal. Appetite and general condition good. Wrap the joints in cotton and take twenty drops of manaca five times daily.

June 17th.—There is no change in the case except that the force of the inflammation is now felt in the shoulders and elbows, the knees being much better. Increase dose to thirty drops five times daily.

June 20th.—During the last two days recovery has been rapid, and the patient has spent most of his time out of doors. He complains of considerable frontal headache, which came on yesterday and is getting worse. Reduce dose of manaca one-half.

June 22d.—The patient has entirely recovered from rheumatism and headache. Stop manaca and take iron tincture for two weeks.

July 15th.—Patient seen to day; has had no further rheumatic trouble.

CASE XII. *Rheumatism of a day's duration; entire failure of manaca to relieve.*—C. J. S——, twenty years of age, salesman. Upon July 10th the patient, while under treatment for phthisis, fell asleep in a draught, and shortly afterward was seized with pain, heat, and swelling in the left shoulder and elbow-joints. In a few hours the inflammation shifted to the ankles, causing well-marked lameness. There was no rise in temperature. General condition was bad. Ordered manaca in twenty-drop doses five times daily.

July 12th.—The joints are more painful, and the patient more irritable than when last seen. Continue treatment.

July 15th.—The young man is steadily getting worse and is now confined to bed. Ordered the dose increased from twenty to thirty drops, but the patient refuses to continue the drug and intimates that he must have a change either of treatment or physician. He has a change of treatment, and a mixture containing potassium iodide, and colchicum is given.

July 25th.—The patient has slowly but steadily improved since the last note was made, and is now almost free from rheumatism.

CASE XIII. *Rheumatism of twenty-four hours' duration; recovery in two days.*—T. McG——, aged fifty-five, carpenter. For fifteen years this patient has been a sufferer from chronic rheumatism to a greater or less extent. When he came under observation he had had no rheumatic symptoms for six months, but had been much troubled by cardiac palpitation, cough, and dyspnœa. Examination showed extensive pulmonary emphysema, chronic bronchitis, and a mitral regurgitant murmur. His general condition was fair. Concentrated nourishment, rest, and a mixture containing convallaria and quebracho were prescribed.

Upon Sept 15th he awoke with stiff, swollen, and painful elbows, wrists and ankles. During the day the knees became affected, and muscular rheumatism developed in the lumbar and cervical regions.

September 16th.—The condition remains as yesterday. All former medicine suspended and manaca in twenty-drop doses five times daily, is ordered.

September 18th.—The more acute symptoms have subsided, leaving only stiffness—especially of the knees. Iron tincture and convallaria are to be added to the manaca and continued for two weeks.

October 15th.—The above treatment has been carried out. No relapse has occurred.

CASE XIV. *Rheumatism of two weeks' standing; recovery in five days.*—C. C——, aged eleven, schoolgirl. Was first seen, for rheumatism, upon September 22d. For several days she had complained of slight stiffness and soreness in tha knees, shoulders and neck. Her general condition was excellent. Ordered Dover's powder, to be followed by small doses of Rochelle salt three times daily.

October 1st.—The joint-stiffness and soreness has not entirely disappeared at any time since last note was made, and to-day it is worse than ever before. Ordered manaca in twenty-drop doses three times daily; also clothe the child in flannel undergarments.

Oct. 3d.—Considerable improvement has taken place.

October 5th.—Recovery complete. Continue treatment for one week.—C. M. Cauldwell, M. D., Visiting Physician to St. Joseph's Hospital, New York, in *Medical Record*, July 12, 1884.

Brain Work Under Pressure. Its Effects on Digestion.—Brain-work is as necessary and healthful to the economy as muscular exercise, and both are essential to health. The condition, however, under which brain-work is wholesome, "is freedom from anxiety, hurry, and worry." If the work can be done calmly and dispassionately, it is but the natural physiological action of a bodily function, and, like the escapement wheel of a watch, is part of the machinery necessary to the movement of the whole. But worry is like a grain of sand dropped into the same delicate mechanism, the friction of which, sooner or later, is sure to stop the watch. As a machine may run for years without friction, but soon wears out when sand becomes mixed with the lubricator, so the human machine may run along smoothly to a good old age if the life is one of peace and even tenor, but soon breaks down under the friction of worry. This simile will do very well by way of illustration, though the cause for wear, or, more properly speaking, tear, in each case is different when caused by business trouble. Overwork and worry were the cause of tear in the case I beg to present to you. The patient was a gentleman and was aged about twenty-eight when he first came to me for treatment, and he has been under my care for about two years. The worry had been continuous for more than a year prior to that time, and, as it was impossible for him to take a rest, as I desired, I was forced, under the circumstances, to treat his disease during the prevalence of its cause. I obtained from him the following history: First noticed that the bowels were becoming irregular, the feces, dry, hard and lumpy, much belching of wind after meals, and, at the same time, a feeling of constriction in the throat, with more or less fullness and uncomfortable sensation in the region of the stowach. He was also troubled with headache, dizziness, especially on suddenly rising from the stooping posture, and became dull and sluggish in his disposition, though naturally of an active temperament. These symptoms steadily increased, and there was now added much bloating and a gradual increase in the size of the abdomen. The feces were passed with difficulty and only after severe straining, and became more scanty as time progressed. One night he was suddenly awakened out of a sound sleep by a severe pain in the abdomen in the region of the umbilicus. This pain continued to increase until it became unbearable. So, instead of taking morphine, as advised, he resorted to a clyster of warm water and soap, injecting nearly a gallon. Not being able to retain any more it was then discharged, bringing away with it a large amount of accumulated feces and much flatus, the evacuation being followed by immediate relief.

The relief, however, was merely temporary, for though no further pain was experienced, the constipation and dyspeptic symptoms grew worse and worse, and soon it become impossible to obtain an evacuation, even by the aid of injections. It was at this period I took the case in hand. Oiling the index finger of the right hand thoroughly, and soaping well the finger nail, I inserted it into the rectum, and

found, as I expected, that the bowels were thoroughly corked with hardened feces. After some difficulty I managed to clean out this Augean stable, when I found that the gut had become prolapsed by the constant straining, and that its calibre was narrowed in several places so small that it would not admit my finger without force. The bowels, still being distended above the constricture, injections were now tried, but only inflated the rectum, failing to pass the constriction, and were rejected with much force, as soon as the nozzle of the syringe was removed. After dilating the constriction as far as possible with the finger, the bowel was cleaned out with a brisk cathartic. I then prescribed teaspoonful doses of elix. cascara three times a day, and instructed my patient to dig out the rectum as I had done if the accumulation again occurred, dilating the constricted portion with his finger. With this treatment and no other, I have succeeded in effecting nearly a perfect cure. Several times from neglect to take the medicine, and the continuance of brain-work under pressure, the dyspepsia and constipation have recurred, but I forbade the use of cathartics and continued the cascara, with the same favorable results. Several times the patient has been obliged to remove the accumulated feces with his finger, but he tells me that he had rather do that than experience the ill effects of cathartic pills. The bowel has regained its tone, the constriction has nearly disappeared, and health and activity have taken the place of torpor and inactivity.

Now, my theory with regard to this case is, first that the undue drain on blood and nerve force by an overactive and worried brain, starved the alimentary canal, resulting in its inactivity and indigestion. Second, that the rough irritating, undigested material in the intestine, caused the stricture. Third, that the mild irritating nature of the cascara, and the tonic effect of its bitter principle restored the bowel to its normal condition, and that nature thus aided will now perfect the cure.—Dr. F. E. Stewart in the *Medical Bulletin*, May, 1884.

In Regard to the Use of Jequirity.—The medical journals have not failed to inform their readers that a new remedy has been introduced by Wecker into the oculistic therapeutics, which, by its prompt, energetic and sure action in trachoma and pannus, by far surpasses all the other methods of treatment ordinarily used in this affection. These glad tidings have been corroborated by the casual publication of notes and comments on the many excellent results obtained by Wecker and his followers by the new procedure, which consists of applying an infusion of jequirity, of a given strength, to the surface of the palpebral conjunctiva, in order to produce rapid suppuration, and by means of the latter to promote absorption of the trachomatous infiltration. The method of treatment is based upon the same idea which led to inoculation of blennorrhœic pus in cases of pannus. I have not seen any medical paper at my command dwelling upon the great dangers in which the diseased eye is apt to be involved by the process of suppuration, and by the possible excess of reaction. I have not seen pointed out the fatal consequences which may develop in some instances. The glittering side of the question has only been made conspicuous, and it has not been considered worth while to show also the reverse of the medal. That this sin of omission may prove a source of trouble and mischief to some medical practitioners, is obvious. The general physician is not in the position to follow all the intricacies of the experiments with the new drug. He relies for information on his medical journal, and the latter tells him of jequirity as the panacea in trachoma and pannus. Now suppose he just had such a case under hand, which had proved rebellious to the treatment with the usual remedies. He finds jequirity highly spoken of in his journal, and he avails himself of the opportunity to win by easy means the battle and the honors connected with it. And now it happens that he makes matters worse, that the very existence of the organ is endangered by the new treatment, the full recovery of which he has expected with such confidence! But I do not draw the picture from imagination; I do not speak of possibilities, but of facts that have already occurred. I relate incidents of the practical life which were communicated to me by general practitioners from different parts of our country. There was excess of reaction in some instances, and implication of the cornea in others. Besides, I have received letters in which physicians appealed to me for information concerning the action of jequirity, and the expediency of using it in trachoma and pannus, urging me at the same time to lay before the profession the results of my experiments in the matter.

In answer to the many queries, by which I feel deeply honored, I have only to state briefly as follows:

I have not had any cause to abandon my usual method of treatment in instances of trachoma and pannus, which has still given me the most satisfactory results even in the most obstinate and inveterate cases. My interest in jequirity has thus far been merely theoretical, and the successes reported from one side, and the failures brought forward by the other, have only served to uphold my position of objective observation. The question is by no means ripe for verdict. Only the future can show whether jequirity will gain a permanent place in the oculistic therapeutics, or will share the fate of the many other "new remedies," to sink into well-merited oblivion after a short period of dubious fame.

But if I cannot produce the results of my own trials with the use of jequirity in trachoma and pannus, I am able to give my experiences on the action of jequirity, which I have gained from experiments made by others. The issue of these experiments in nine cases, which came under my observation, indicates plainly enough the course the general practitioner has to take in regard to jequirity.

Of the nine cases above mentioned, the result of the treatment with jequirity was negative in five cases of trachoma and pannus. There was no improvement whatever, but no injury done either. Two cases presented with trachoma and pannus, deep corneal ulcerations, which were asserted to have developed during the treatment with jequirity. Before the latter had been started, the patient had enjoyed fair vision. One patient, with xerophthalmus of both eyes, suffered the loss of the right eye in consequence of panophthalmitis, which had set in on the fourth day after the application of jequirity. There was not the slightest improvement in the left eye. A girl who had done nothing for her eyes up to the time of the treatment with jequirity, presented herself six weeks later with the following conditions: Lids thickened; palpebral conjunctiva intensely swollen, covered thickly with large granulations, and furrowed with tendinous cicatrices. Both corneæ opaque and vascular.—M. Landesburg, M. D., in *Journal American Medical Association*, July, 1884.

Sulphide of Calcium in the Treatment of Scabies.—In some of the most recent works on medicine, I find that sulphur-ointment alone is suggested as a remedy for scabies. Thus, in a work which has gained for itself a world-wide reputation, Quain's Dictionary of Medicine, the line of treatment is laid down as follows:

"In order to cure an ordinary case of scabies, it is simply necessary that the patient, before going to bed, should thoroughly apply, and gently rub in, sulphur-ointment to every part of the body, excepting the skin of the face and scalp; and in order to keep the ointment in contact with the skin, he should sleep in his underclothes, such as drawers, jersey, shirt, and gloves, and in the morning take a warm bath. The process should be repeated the next night, after which the ointment should be used every

night for a week or ten days to those parts of the body only which are specially attacked."

All who have to deal with scabies—as medical officers of industrial schools and Poor-law medical officers—will agree with me that such a method of treatment is not only unnecessary, but tedious, disagreeable, and expensive It would be impossible to apply it in the majority of cases.

In some recent text-books on therapeutics and materia medica, sulphur-ointment is also recognized as the treatment for scabies. In consequence of this, I have been induced to bring the treatment of scabies before the Section, in order to give a practical hint on a line of treatment which recommends itself on the grounds of efficiency, economy, and rapidity of cure. It is not by any means a new method, but it does not appear to me to be sufficiently known or appreciated. It is the treatment by sulphide of calcium. This name is also applied to a powder, the pills of which, in small doses, are very useful in the treatment of boils. The preparation used is in a liquid form, and from its color is known in the army and in the Poor-law service, as golden lotion. It may be made from the following formula: Flower of sulphur, 100 parts; quicklime, 200 parts; water, 1,000 parts. Boil the whole for some time, stirring occasionally until the substances become incorporated, allow the liquid to cool, and decant into hermetically sealed bottles. It should not be made in a metal vessel; and, as in the process of making the smell is not agreeable, care should be taken in this respect.

There is a great difference in the preparations in the market. The best preparations I have met with I have obtained from Richardson & Son, Leicester; Clarke, Bleasdale, Bell, and Tollington, of York.

The method of application is as follows: The patient is first put into a warm bath; he is then painted with a brush dipped in the solution, and placed in bed, either in blankets or in a flannel nightgown made for the purpose. After a short time, owing to the deposit of the sulphur, the patient's body is almost of the color of a guinea. The beneficial effects are speedily manifested; the itching ceases, and, as a rule, in simple cases, after another warm bath, the patient may be discharged cured.

In long-standing neglected cases, the duration of treatment would be longer, as the scales and crusts produced by itching and neglect have to fall off. Scabies underlies many of the forms of skin disease seen in Poor-law practice, and this is a practical point to bear in mind. I have used the sulphide of calcium since 1869, when I first entered the Poor-law medical service. I have since treated some thousands of cases, using the sulphide alone. My experience enables me to testify to the accuracy of Dr. Bourguignon's statement that it is a specific for scabies. It has the following merits: It is a clean application—differing in this respect from the sulphur ointment; it is easy of application, and will penetrate—here again it has an advantage over the sulphur-ointment; it is cheap and speedy in its action; one or two applications will, as a rule, be sufficient; it does not require the destruction of any clothing, nor the complicated process described by Dr. Liveing in Quain's Dictionary of Medicine. At the end of the short article from which I have quoted, Dr Liveing briefly alludes to this method, and says: "This lotion is effective, but it is apt to irritate the skin, and is not so generally useful as the sulphur-ointment." In a small number of cases the use of this remedy causes roughness of the skin. Its overuse or abuse produces troublesome irritation of the skin. This may be at once remedied: the patient should be ordered a bath of soda and water, when all ill effects will speedily disappear.

The sulphur-ointment should be expunged from our text-books as an obsolete form of treatment. The sulphide of calcium should take its place. I believe it is used in the army in England and on the Continent, and generally throughout the Poor law medical service, so that my testimony is not singular as to its value.—Thomas M. Dolan, M. D., F. R. C. S. Ed., in *British Medical Journal.*

New Remedies for Psoriasis.—During the last few years, some real progress has been made in the local treatment of skin-diseases. Amongst the new remedies which have come into use, chrysophanic acid holds a conspicuous place. Its effect in curing psoriasis is undoubted; and if it be not universally employed, it is more on account of the inconveniences connected with its use than from any doubt of its real efficacy. Several ingenious methods have been lately introduced with the object of remedying these inconveniences. Amongst them, Pick has recommended a mixture of gelatine and chrysophanic acid in different proportions, and the method has now been introduced to the profession for some time.

Auspitz has lately conceived the idea of using "traumaticin" instead of gelatine as an excipient for chrysophanic acid, traumaticin being a solution of one part of purified gutta-percha in ten parts of chloroform. This preparation adheres closely to the skin, and remains from two to three days without change. Gelatine, on the contrary, becomes detached within several days by the rubbing of the clothes or the movement of the limbs. Traumaticin forms a much thinner and more delicate pellicle than either collodion or gelatine, and is more easily borne; and as applications made with the solution of the strength of ten per cent. have never provoked irritation, even when applied to considerable surfaces, either in children or in adults—the chloroform evaporating slowly and the gutta-percha becoming only gradually hard—it is easy, whilst making an application, to rub it well in upon a considerable number of patches. By means of this rubbing the scales can be removed, and the chrysophanic acid directly applied to the bare and bleeding patches.

The method of Auspitz is carried out in this manner: After the scales have been removed by means of a bath and application of soap, all the patches are dabbed and rubbed with a brush steeped in a mixture of the strength of ten per cent. If the affection be not extensive, the application is renewed each day. If it occupy a large extent of surface, it is renewed only in two or three days. If the scales be in considerable quantity a soap bath is prescribed. If the scales be not very plentiful, soap-lotions are sufficient. After one or two rubbings many of the patches appear flat, and in general the scales persist only on the borders of the patches. After two, or at the most a dozen, applications, according to the intensity and extent of the psoriasis, the infiltration and scales disappear, and in their place are found white patches surrounded with a red or violet-brown border. When the disease is limited in extent, one application renewed daily for three to six days is sufficient to cause the patches to disappear, without the necessity of having recourse to lotions or baths.

M. Besnier has experimented with all these methods in the St. Louis Hospital, Paris, and gives a preference to the method of Auspitz, which, however, he has somewhat modified. After removing the scales, he rubs the patches with a common house-painter's brush, soaked in the mixture of chloroform and chrysophanic acid at fifteen per cent. The duration and energy with which the application is made should vary according to the thickness of the patches of psoriasis. The application gives rise to a slight sensation of heat and smarting; in a few seconds the chloroform has evaporated and the patch is literally infiltrated with pure chrysophanic acid, having become of the deep yellow color of iodoform. It is only then that, with a large flat brush, the patch is covered with a layer of traumaticin, which must be thickly laid on, and which extends beyond the borders of the patch. The result is said to be excellent.

M. Besnier has applied this method even to parts covered with hair, and without any untoward acci-

dent, local or general. The method has been found useful chiefly in cases of moderate infiltration; but when the patch is thick, fissured, and desquamating abundantly, the effect is not so striking. In such cases he has used, instead of chrysophanic chloroform, a ten per cent. solution of pyrogallic acid in ether, which is then immediately covered with a layer of traumaticin.

In this connection we would, however, remind our readers that pyrogallic acid must be applied to the skin with great caution, several cases having been reported in which fatal results followed its absorption.—*British Medical Journal*, May, 24, 1884.

Note on Stigmata Maidis.—It is only a few years since this agent has been employed, and we are indebted to France for its introduction. In this country it is yet comparatively unknown, and but few practitioners have made use of it or are acquainted with it or its mode of action.

The green pistils or "silk" of our common Indian maize or corn are employed, and a fluid extract prepared by a process of maceration and hydraulic pressure without heat. To this liquid is added a sufficient quantity of alcohol to prevent fermentation or decomposition. This is somewhat of a disadvantage and drawback in its therapeutical application, but can hardly be avoided.

The strength of this extract is the standard of the United States Pharmacopœia of 1880, viz., one grain to each cubic centimeter or one ounce to each fluid ounce. The dose of the fluid extract thus prepared is from one to two fluid drachms.

The fluid extract has a brown color and a pleasant odor and taste, reminding me, a great deal, of that of green corn. I wish to state here that the extract made by Parke, Davis & Co., of Detroit, is the most agreeable to the taste of all the makes I have met with, and is fully equal to any in its action.

The corn silk has been in use a number of years by isolated practitioners, but the profession at large was not acquainted with its use until about the year 1879, and, although it has been extensively used since then, but little definite is yet known of its therapeutic properties. It is undoubtedly a diuretic, and one of considerable power. Besides this, it seems to possess some anodyne power over the mucous membrane of the urinary tract. M. Deunée, of Bordeaux, regards it as beneficial in all diseases of mucous surfaces. The drug renders the pulse more regular, increases the arterial tension and diminishes that of the veins. The tolerance of the drug is complete, and it can be taken for a very long time without any inconvenience. M. Castan, professor at Montpellier, believes it to be a local anodyne or anæsthetic, whereas M. Deunée, of Bordeaux, regards it as having an elective action on the mucous membrane of the bladder.

In regard to its application, the writer has had but a limited experience, but although not extensive, it has been satisfactory to a high degree. In a number of cases of renal congestion, due to various causes, such as overwork, the use of alcohols, "cold," etc., the fluid extract of stigmata maidis has acted promptly and efficiently. In affections of the bladder the action has been good; but the most satisfaction has been derived from its action in cases of true and spurious gonorrhœa. In the former it aids the action of the drugs administered, and increases the rapidity of cure. Some late writer has even claimed that he has entirely relieved such cases by the use of the corn silk alone. I have used this drug alone in several cases of spurious gonorrhœa, and was agreeably surprised to see them get entirely well in a short time by means of this treatment.

It has lately been claimed by a French writer that corn silk has a very good action in heart diseases, claiming superiority for it over digitalis and lily of the valley (convallaria majalis). That it has some good effect in such cases is probable, but its further use in cardiac affections will have to be prosecuted before its claims in this direction will have become fully established.

Often the corn silk will produce a cure in cystic or renal affections after the usual internal remedies have failed, or it will have the effect of rendering them more efficacious when conjoined with them.

Dr. Dufau regards as contra-indications to the use of this drug the following conditions: Acute traumatic cystitis or gonorrhœal cystitis, the drawback to its use is that it increases the pain in such cases.

I will briefly state here that corn silk has been satisfactorily employed in cases of renal colic, where it relieves the pain, gravel, cystitis (acute and chronic), pyelitis, vesical irritation and tenesmus, suppression of urine, retention of urine, dropsy, etc.

The practitioner who will use this remedy in the proper cases will find that it will give a great deal of satisfaction, and the only *raison d'etre* of this short note is to call attention to a good and reliable remedy, which seems to be but little known and less used. —Prof. Ohmann-Dumesnil, M. D., in *St. Louis Medical and Surgical Journal*, May, 1884.

More About Kola Nut.—In the Bulletin of the Société Géogr. de Marseille for June, Heckel gives new information, with a resumé of old, in regard to the African nut known as Kola, or Guru. This seed, which is hardly to be called a nut, has a kernel about two inches in length, somewhat like that of a peanut, with a groove instead of a projecting point at the germinal end. It may be white or red, or both, to the number of four or five in the same rough brown pod. It is the product of a tree of the family Sterculiaceæ. The genus has been called Sterculia, Kola, etc., and there are several species or varieties. This nut, or seed, is remarkable on account of containing (besides glucose, tannin, and a bitter principle) caffeine and theobromine (the principles of coffee and cocoa) in large proportion. Among the African tribes it takes the place of tea and coffee or cocoa—products of plants belonging to very different groups, but valued for the same essential principle. It has been used from time immemorial, and many singular stories have been current as to its effect upon the system, though little authentic information was at hand.

Kola is gathered twice a year, carefully shelled, and the bare meats are immediately despatched into the interior; carefully wrapped in green leaves to insure them from drying. They have to be carefully picked over every twenty or thirty days, and all defective ones thrown out. It is considered very important that they should be kept fresh and somewhat moist. However, as soon as they begin to shrivel and dry up, the caravan merchants dry them thoroughly in the sun, and pound them to a powder in a mortar. The seeds are worth twenty or thirty cents a pound at the place where gathered near Sierra Leone; but they rapidly increase in value away from the original market. At Goree a single seed will be sold at six to ten cents, according to the state of the market. In the interior the tribes on the Niger pay as high as one dollar per seed, and in times of scarcity a slave has been given for one seed. In the far interior, the Arab merchants frequently dispose of the powder for its weight in gold-dust.

The Kola is the stimulant of the African tribes, and is in order on every occasion. Among those peoples where the nut is not indigenous, nor yet too extravagantly dear, no transaction of any moment can take place without an exchange of Kolas. This is either in token of good-will or to "bind the bargain."

If two tribes ally themselves, they exchange white Kolas, this color being always the token of good-will and peace. If war is declared, the announcement is made by sending red Kolas to the enemy. A request for a wife is accompanied by the present of a white Kola from the lover to the intended mother-in-law. The response favorable is by a seed of the same color; a refusal, by a red one.

The wedding present of the husband to his bride is incomplete without a certain number of Kolas. In the interior, where they are so valuable, the gift of one is considered a high attention, and, when given by a chief to a white traveller, takes the character of an assurance of protection. One of the chiefs of the upper Niger sent Zweifel and Mousteir red Kolas wrapped in green leaves, as a sign that they would not be permitted to ascend certain sacred watercourses included in their programme.

In religious or judicial proceedings they are equally important. All oaths are taken on these seeds; the witness holds his hand over them, swears, and then eats them. An accuser demanding justice brings to the judge a little basket of rice with four or five Kolas upon it. The sorcerers lay great stress on the attractive qualities of this seed in drawing away evil spirits, sickness, and misfortune. Friends place with the dead some Kolas, that he may safely endure his "long journey;" and, to crown all, the Mohometans declare it to be a fruit of divine origin, brought to earth by the Prophet himself.

The nut is chewed as if it were tobacco; the powder is eaten. The taste is sweet, astringent and bitter in succession. Europeans as well as negroes are devoted to it. It not only sustains the system under the greatest fatigues, even without food and for long periods, but it is also a certain preventive of the dysenteries and deadly fluxes which render that region so unhealthy. The powder makes foul water drinkble and harmless.—*Health*, Jan. 1884.

Warburg's Tincture.—Hints for Simplifying and Cheapening it.—Some time ago I was so impressed with the shrewd hints of *The Record* about Warburg's tincture that I have made a careful study of that complex preparation, which I hope will be instructive to its readers.

In the tincture 42 ounces of various ingredients are to be dissolved in 500 parts of proof spirit, which is about half alcohol and half water, by placing them in a water-bath for twelve hours, then expressing them and adding 10 ounces of disulphate of quinine, the whole mixture being replaced in the water-bath until all the quinine is dissolved.

The process seems simple, but it may safely be assumed that a great residuum of resinous, bitter, and aromatic substances will be left behind.

Next to quinine the most important ingredient is aloes, of which 1 lb. British, or 16 ounces avordupois, or 7,000, grains are to be dissolved in the 500 ounces of proof spirit. There are next 4 ounces, or 1,750 grains of rhubard. Third, 4 ounces, or 1,750 grains, of angelica seeds, which is a simple aromatic tonic, spice, or stimulant, like aniseed, calamus, and the like. Fourth, 4 ounces, or 1,750 grains of the so-called *confectio damocratis*, which is a mild confection of opium, which once contained sixty-two ingredients, with about 5 grains to the ounce, of opium. Nearly a century ago the London physicians substituted the *confectio Londonense*, made of opium, 6 drachms; long pepper, 1 ounce; ginger, 2 ounces; caraway seeds, 3 ounces; syrup, 1 pint. There is 1 grain of opium in every 36 grains, and the dose 10 to 30 grains. Hooper says: "To the credit of modern pharmacy this is almost the only confection of opium that now remains of all those complicated and confused preparations called Damocratis, Mithridate, Theraic, etc. It more nearly approximates the virtues of all of them than any other, and may be considered an effectual substitute for them in practice. It is a very warm and stimulating confection and admirably calculated to soothe pain and restlessness, and sustain strength in low fevers." Fifth, 2 ounces, or 875 grains of elecampane, or less than 2 grains to the ounce: all its virtue are due to a slightly peculiar camphor, which gives it its odor. Sixth, 2 ounces of saffron. Seventh, 2 ounces of fennel seeds. Eighth, 1 ounce, or less than 1 grain to the ounce, of gentian. Ninth, 1 ounce of zedoary, which is almost identical with ginger. Tenth, 1 ounce of cubebs. Eleventh, 1 ounce of myrrh. Twelfth, 1 ounce of camphor. Thirteenth, 1 ounce of boletus laricis, which is a purgative comparable to jalap and senna.

To sum up, in each ounce of Warburg's tincture we have about ten grains of quinine; fourteen of aloes; four of rhubarb; one of opium; two of elecampane; two of saffron; one of gentian; one of ginger; two of fennel seeds; one of cubebs; one of myrrh; one of camphor; and one of boletus, or jalap, or senna.

In building up this tincture, Warburg probably took a hint from the German and French so-called Paracelsian elixir of life, which is composed of aloes, nine parts; gentian, rhubarb, zedoary, saffron, and boletus laricis, or larch, or purging agaric, each one part; digested in proof spirit two hundred parts, and of which the tonic and alterative dose is one or two drachms.

The European tincture of rhubard is made with cardamon and coriander seeds, and saffron. The angelica seeds, fennel seeds, elecampane, saffron, zedoary, cubebs, and the little myrrh and camphor are pleasant aromatic additions to the tincture; and the one grain of gentian, and one grain of boletus or jalap do not deserve a great deal of attention.

The question arises whether a few aloes and rhubarb pills with quinine and spices will not accomplish almost all that Warburg's tincture will.

Or, if a liquid preparation is preferred, any physician can build a formula for himself with simple tincture of aloes and liquorice, U. S. P.; or tinct. rhei et sennæ, U. S. P., made with rhubarb, senna, coriander and fennel seeds, aided by a little paregoric and compound tincture of gentian—the latter made with gentian, bitter orange peel and coriander seeds—which will complete the whole, unless one prefers to add a few drops of tincture of myrrh and fluid extract of cubebs.—Dr. John C. Peters, in *The Medical Record*, July 19, 1884.

Experiments on Poisoning by the Bacilli of the Maceration of Jequirity.—M. de Wecker having demonstrated the production of inflammation of the conjunctiva, as a means of curing rebellious ophthalmia by the use of this drug; and M. Sattler having determined that its active principle was due to the presence of a characteristic bacillus, MM. V. Cornil and A. Berloiz have conducted a series of experiments (Archives de Physiologie) on the mode of action of this substance when absorbed—through the lymphatics or by the blood. Their experiments were conducted on the guinea pig, rabbit, and frog, and are summarized as follows:

1. The action of the bacillus of jequirity when absorbed, and after having penetrated into the animal organism, varies according to the mode of its introduction, and the species of animal.

2. Whilst the local action of the microbes of jequirity on the conjunctival mucous membrane reacts but slightly on the general health, and gives therapeutic results in serious ophthalmia, their introduction into the lymph and blood produces general symptoms, followed by death, in the guinea pig, rabbit frog, and fishes.

3. The subcutaneous injection into the cellular tissue of a cubic half-centimeter of a weak infusion, produces an inflammatory œdema and lesions that are generally followed by death. If the dose be very small, the more or less extensive œdema terminates in a phlegmon and gangrene, and confers upon the inoculated animal an immunity against the subsequent injection of strong doses.

4. Injections into the peritonæum and pleuræ of rabbits of ¼ to ½ of a cubic centimeter of the decoction of jequirity produced a peritonitis and a fibrinous pleurisy, followed by death with general lesions. The living microbes were found in the sero-purulent exudation which characterizes these inflammations. These micro-organisms might penetrate into the blood and cause, through the obliteration of certain vascular territories of the liver, an infarctus with necrosis of the hepatic cells.

5. The injection of from two to three cubic centimeters of the decoction of jequirity into the veins of the ear of the rabbit is followed by death in a few hours. The bacilli of jequirity are eliminated through the stools and urine one or two hours after injection. The injection of two or three drops of the same decoction in the veins of the rabbit causes death in twenty-four hours.

6. In a general way the bacteria of jequirity live, reproduce themselves, and disseminate through the blood of cold-blooded animals (frogs, fishes), with an activity that is incomparably greater than in the blood of the smaller mammalia. With the frog, let the dose be large (½ cubic centimeter) or small (two drops), by its introduction into the dorsal lymphatic sac, or the peritonæum, death follows with a colossal quantity of living, moving bacilli in the blood, the lymph and the serous cavities. While their number in the blood is comparable to that observed in charbon, there is also an elimination of the microbes by the urine. The capillaries of all the organs are more or less filled, but the cellules of the parenchymatous organs, the liver, kidney, glands; the proper elements of the connective, muscular, cartilaginous and other tissues, do not undergo any pathological modification, a fact which also increases the similarity of this infectious disease with that of acute charbon. It appears, like the charbon bacteria to produce death by depriving the blood globules of their oxygen.

7. The blood of a frog so intoxicated has itself become septic. The subcutaneous inoculation of a portion of that blood produces a special septicæmic condition, with subcutaneous œdema, ecchymoses, etc., followed by death, which takes place in a few days. The lymph and blood are filled with bacilli, almost as numerous as when the maceration of jequirity is used; all the vessels are filled without producing thrombosis. The secretions also contain bacilli which are eliminated in this way. The parenchymatous cellules are not generally altered in any marked degree.—*Journal American Medical Association.*

The Action of Papayotin and Papain.—According to Professor Rossbach (Zeitschr. f. k. Med., vi Bd.,6 Heft 1883), the *car ca papaya*, or papay tree, is a native of South Africa, but is cultivated also in other tropical countries, and can be raised elsewhere in hot-houses. Its wood, leaves, and berries contain a great abundance of milky juice, which flows freely from an incision in the trunk, and hardens on exposure to the air. From this juice is obtained, by precipitation with alcohol, that peculiar digestive ferment which Würtz and Bouchut have denominated papain. It has been shown by these experimenters that a given quantity of papain is capable of dissolving one thousand times its own weight of moistened fibrin, almost the whole of which it transforms into a peptone, and that its digestive action is similar in all respects to that of natural pepsin. It is also proved that this liquefaction of fibrin is in no degree due to the bacteria which are propagated with great rapidity in the papain solution.

Professor Rossbach has found: 1. That hot, concentrated solutions of papayotin exert their solvent powers no more speedily than cold ones. 2. That the flesh of newly-killed rabbits, when placed in a five-per cent. solution of papayotin, becomes soft and sometimes quite disintegrated, in half an hour, while pulmonary tissue, on the contrary, is scarcely acted upon, and living mucous membrane is not in the least affected. 8. That very weak preparations possess but little solvent power; hardly any perceptible effect is produced by a one-half-per-cent. solution. The digestive energy of papayotin is lessened by the addition of either hydrochloric acid or phenol, but is not entirely destroyed even when these agents are used in the proportion of four per cent.

No ill effects were produced on dogs, cats, or rabbits, whether healthy or diseased, by the ingestion of papayotin in large quantities. In some cases the appetite was greatly increased. In those animals which were killed after partaking of the drug, the mucous membrane of the stomach and œsophagus showed not the slightest alteration.

From these and other similar observations the following points have been established bearing upon the therapeutical applications of this remarkable substance: 1. Papayotin, when taken internally, is entirely harmless. 2. For subcutaneous injections only a sterilized solution should be employed, and this always in very small doses. 3. When thrown directly into the circulation, papayotin acts as a powerful poison by paralyzing the heart and nervous centers.

The following are the diseased conditions for which papayotin has so far been recommended: *a.* Various cutaneous eruptions, including lichen tropicus. In these affections its efficacy has not been tested by Rossbach. *b.* It has been employed to dissolve external carcinomatous tubercles. Bouchut injected it into swollen cervical glands, causing great pain and considerable fever. In three days the tumors softened and turned into abscesses. In three cases of mammary carcinoma, and one case of scirrhus of the axillary glands, which were treated by Péan at the Hôpital St. Louis with injections of papain, the hard swellings were softened and digested. Rossbach thinks that in such complaints it is better to extirpate the morbid growths, or, if this procedure is contraindicated, he recommends injecting them several times a week with a little sterilized solution of papayotin. *c.* In diphtheria, and for the resolution of croupous false membrane. Koths and Aschbach report favorable results from papayotin in fifty-three cases of diphtheria. In bad attacks of croup, Rossbach advises that a solution of papayotin, made as strong as possible, be kept in constant contact with the exudation by painting it over the latter, and also dropping it into the nose and mouth, every five minutes. *d.* Papayotin has been employed in France to assist the digestion of meat in cases of dyspepsia and other gastro-intestinal disorders. Dr. Albrecht has prescribed it successfully for various complaints of the stomach and bowels in children. Vomiting and indigestion are said to be very quickly relieved by small doses. Rossbach believes that papayotin, given by the mouth or in nutritive enemata, is especially serviceable when there is a deficiency of the normal gastric juices. *e.* Probably the solvent powers of this agent will yet be made available in many gastric carcinomata. *f.* Descourtily and Tussac report that the juice is an effectual vermicide.—*New York Medical Journal.*

The Nature of Jequirity Inflammation and its Use in Ulcers.—Mr. Arthur Censon read a paper before the Academy of Medicine, Ireland, recounting a series of experiments on the etiology of Jequirity inflammation. He concluded that the bacillus found in the infusion had nothing whatever to do with the production of the inflammation, but had not yet satisfied himself as to its real nature. He could produce the characteristic membranous ophthalmia with jequirity-powder, with freshly-made cold infusion, with infusion in which the bacilli had developed, with the same, after they had died, and with an infusion over eight weeks old, but still swarming with micro-organisms of various kinds, while he had failed to produce any results by inoculation of the discharge or membrane caused by jequirity. Nor could he in the membrane or discharge find any bacilli, though he had made numerous observations at all stages of the affection. In these respects his observations were confirmed by those of Neisser, Klein, Solomonsen, and Holmfield. He had latterly tried the effects of powdered jequirity dusted on callous ulcers of the leg, and found that a similar membranous inflammation was produced on them as in the conjunctiva, the membrane being

easily detached from the ulcerated surface. The stimulation caused by the application seemed decidedly beneficial in a certain class of ulcers; and even in vascular ulcers the application of the powder produced hardly any pain. In this respect there was a striking contrast between its effect on the conjunctiva and on ulcers of the skin. He hoped that surgeons would give the drug a trial in such cases, as he believed it would prove of real value in the treatment of chronic ulcers. He was at present engaged in a series of experiments with a view to discovering the real nature of jequirity inflammation, and hoped, by working on ulcers of the leg and arm, to arrive at more satisfactory results than were attainable when working on the conjunctiva, where it was quite impossible to avoid the irritating effects of external influences.—Mr. Story for a long time believed that bacilli were the cause of the ophthalmia, but since Mr. Benson's experiments he had modified his opinion and did not regard that theory as proved. The fact that when a portion of the dense membrane formed by the action of the drug, was put into a healthy conjunctiva it produced no effect, was remarkable, and almost demonstrated that the bacilli could not be the cause of the inflammation. No bacilli were found in the membrane in one case, and when the same membrane was put into the person's other eye, it produced no effect, and no bacilli were found in the discharges —Dr. Joseph Kenny believed that Mr. Benson's observations were at all events coeval with those of Klein. In the North Dublin Union Workhouse, the drug was tried on ulcers, with strongly-marked improvement as the result. An ulcer of many years' standing, near the tendo Achilles of a man's foot was exceedingly intractable, and had been a couple of years under his own observation. For eighteen months there had been no improvement, yet within twenty four hours after the application of jequirity red granules appeared, and the ulcer began to fill; but from that time, in consequence of illness, he had himself lost sight of the case. In another case, not so typical, a fair amount of granulation took place, and the tendency to bleeding was arrested on the application of the jequirity without delaying the process of granulation. Indeed, the tendency to granulation increased, while the tendency to bleed decreased, and the little pain caused by the application was remarkable; thereby contrasting favorably with other stimulating applications, especially the blisters. It was difficult to limit the area of influence of the blister, but that of jequirity extended only a small distance outside of the area powdered with it. On the whole, he was encouraged to proceed with the investigation of the effects of the drug in cases of ulcer.—*British Medical Journal.*

Coca Clinically.—After the removal of alcohol in the treatment of the inebriate, a stage of profound exhaustion and neurasthenia comes on. An unmasking, as it were, of a nameless variety of neuralgias and states of irritation, both physical and psychical, which tax therapeutic resources to its utmost to meet. Functional changes and perversions that are intense, complex and very changeable, associated with organic lesions, both obscure and well defined, not only difficult to diagnose, but more difficult to treat. These are termed, in general, states of brain and nerve exhaustion, and the usual remedies are quinine, strychnine, electricity, baths, nutrients, and other general remedies. The materia medica is constantly searched for tonics that will lessen this neurasthenic stage, and enable the patient to regain in some measure his lost control of mind and body, and rise above the mental depressions so common and agonizing. Our experience with coca in many cases seems to indicate that it meets these wants more positively than any other drug now used.

Through the kindness of Parke, Davis & Co., of Detroit, we were supplied with the fluid extract of coca leaves, a preparation of known purity and value. The results of its use in these cases may be summed up as follows:

1. After the removal of alcohol, coca given in doses of from one-half to one ounce every four hours was speedily followed by the most characteristic symptoms of improvement.

2. Its action on the brain and nervous system was that of an exhilarant and slight narcotic, relieving depressions and lessening irritable nerve conditions. In cases of organic and functional lesions of the heart, an increased steadiness of pulse-beat and diminution of pulse irritability was apparent.

3. The psychological depressions and neuralgias so common in this stage were lessened, and disappeared altogether in most cases, especially for some time after the use of the drug.

4. Both the appetite and sleep, in all cases where it was given freely, improved rapidly, and the future of these cases seemed to have less complications and more positive recoveries.

5 No evidence was brought out that would indicate it destroyed the cravings for alcohol in cases of dipsomania; but it was clear that given freely in these cases, it lessened the intensity and duration of the attack. The conclusion which was indicated by this study was that coca was a tonic of great value in inebriety, and more nearly a specific than any other remedy now known.—*Journal of Inebriety*, April, 1884.

Duboisia Myoporoides.—This plant contains a volatile alkaloid of a yellow color, soluble in alcohol, ether, chloroform, water, benzol, etc., and it naturalizes acids; it closely resembles atropia, and is said to be identical with hyosciamine and daturine. But its action seems to be nearest to that of apropia. It has been used mostly in the form of solution (2 to 4 grs. to 1 ℥) as an hypodermic injection as a mydriatic, in diseases of the eye; thus used, it paralyzes the accommodation, and dilates the pupil. In this way it is more prompt in its action than atropia, but its effects pass off more rapidly. Internally given, I find its action upon the mouth, throat and cerebrum identical with that of atropia or the crude belladonna. For headache, with dullness and hebetude, I took 4 gtt. of the fluid extract, prepared by Parke, Davis & Co., of Detroit, Mich.; in a short time I felt considerable dryness of the mouth, throat and tongue, and in some three hours my head was entirely relieved. Its action was identical with that of atropia or belladonna, with the exception that it was more energetic and prompt than belladonna and atropia. It is antagonized by caustic alkalies, physostigmine, and also by muscarine. Duboisia or duboisine antagonizes pilocarpine in its most important properties, hence must not be given with any of the above articles. It antagonizes morphia and opium as readily as does atropia or belladonna.

The action of duboisia upon the vaso-motor centre is about the same as that of atropia. Its effects upon the nervous system, in large doses is well marked. It produces awkwardness in locomotion, and if pushed, it produces complete muscular paresis. In small doses, it produces marked contraction of the capillaries, hence, like belladonna, it becomes one of the most desirable remedies in combating congestion, no matter in what disease it may occur. In typhoid fever attended with headache, or delirium, duboisia becomes one of our main remedies. *The indications for it, are dullness and stupidity.* In children teething, if they are drowsy, and sleep with their eyes half open, with dilated pupils, then duboisia may be given with confidence. Here 5 gtt. of the fl. ex. to 2 ℥ of water, dose, a teaspoonful of this solution every two or three hours. I. J. M. Goss, M. D., in *Chicago Medical Times*, April, 1884.

Boldo in Liver Affections.—We have been favored by our friend M. Champoteau, of Paris, with

a short notice on a glucoside of the boldo (*boldoa fragrans*) employed for many years past in liver affections in Bolivia. It became known in France for the first time in 1868, and in 1874 MM. Bourgoin and Verne having had their attention drawn to it, succeeded in extracting from the leaves of the plant a substance endowed with very weak alkaline properties which they named boldine. But this alkaloid was present in such small quantities—forty pounds of the leaves gave only ten grains—that M. champoteau undertook a more minute study of the plant in order to discover, if possible, another product which would explain the medicinal properties of the boldoa fragrans. After a little trouble a syrupy liquid was extracted, which, on analysis was found to belong to the family of glucosides. Dr. Laborde, who commenced the physiological study of this glucoside, states that in the first series of experiments, one of the principal effects observed of the substance introduced into the organisms whether by way of mouth or hypodermic injection, was to produce a rapid, but peaceful sleep, more or less lasting according to the dose. The animals on which these experiments were made seemed to waken up as from a natural sleep, and in perfect health. M. Laborde observed besides, that, injected subcutaneously in the dog, this substance excited and increased the different secretory functions, and notably the bile, the saliva, and the urine. Boldo in the form of tincture and elixir has been frequently used in liver affections, since the discovery of Verne in 1874. In Chili, the natives regard it as a specific. The dose of the tincture is twenty drops twice a day, and a good wine is made of an ounce of the leaves in a pint of madeira. We have no doubt that the interesting results obtained by M. Champoteau will do much to popularize the drug.—*Medical Press and Circular*, July 2, 1883.

Damiana —Common name, love weed; natural order, turneraceæ; habitat, regions of the Rocky mountains.

Damiana, though introduced to the profession but a few years ago by Dr. John J. Caldwell, is really an old remedy in domestic practice. Father Juan Marie de Salvatierra, a Spanish missionary, reports its use among the Indians over two hundred years ago, as a tonic to debilitated sexual organs and other weaknesses. The Mormon preachers, who certainly use their reproductive organs more than any other class, find in damiana a panacea for their wasted energies. Indeed, it is considered so valuable as a builder up of sexual powers, that those Mormon roosterly elders take a little with their morning "nip," and go on their way rejoicing. F. B. Elmer, late U. S. Consul to La Paz, Mexico, says the country people of Mexico have unbounded confidence in it as a potent remedy for renal and vesical diseases. Damiana seems to act on the basilar portion of the brain, and in this way stimulates the reproductive organs. It is a heart tonic to some extent, and in this way, like cactus, influences the renal organs. It is more efficacious in cases marked by a want of tonicity—atony. In painful menstruation it is often serviceable. In the three cases of this kind treated by fld. ext. damiana (P. D. & Co's.) each was relieved. I used it in one case of incipient vesical catarrh with marked benefit. In five cases of sexual debility (two of them courtesans) I used successfully the following formula. Each case was entirely relieved in two to three weeks:

℞ Ext. damiana fluid, ʒj
Staphysagria tinct, ʒij
Water, ʒiv.
M.

Dose.—Teaspoonful twice daily. This is my favorite formula, and, with hot water hip bath once daily, nourishing diet, rest to the organs, and moderate out-door exercise, it will prove satisfactory to any one that will try it.—Dr. Francis A. Evans, in *Keystone Medical Journal*, June, 1884.

Arenaria Rubra for Gravel and Vesical Catarrh.—Under this name *Spergularia rubra*, known as "sabline" in Algeria, has been introduced from that country into the Materia Medica of the new French Pharmacopœia. The attention of the medical profession in France was directed to this little plant in 1878 by Dr. E. L. Bertherand, as a remedy for gravel and vesical catarrh. It is used for these complaints in Malta and Sicily. For twelve years a decoction of this plant was sold in Algeria by a Maltese, in the form of a secret preparation. The plant grows abundantly on the sandy shores of Algeria and the shores of the Mediterranean. Water distilled with the plant possesses an ammoniacal odor. The properties which it possesses are supposed to be due to the large proportion of alkaline matter and the resinous aromatic principles which it contains. The dried plant has an odor resembling fresh hay, and yields to ether, chlorophyll and a resinous body having the odor of benzoin. Dr. Betherand has used the plant with success in both acute and chronic vesical catarrh, whether purulent or sanguinolent, and finds that in a few days it causes the disappearance of the ammoniacal, putrid, and sometimes intolerable odor of the disease. He has also tried it with success in dysuria, cystitis, and uric acid deposits. In nephritic colic it acts as a prompt and energetic calmative. Dr. Boureau, physician at Saint Largave, has also experimented with the plant in cytitis, vesical catarrh, hæmaturia, jaundice, etc. The results which he has obtained have convinced him that this diuretic will certainly prove an important agent in therapeutics. The decoction is the form generally used. It has a slightly saline taste or odor, and is of a reddish-yellow color. The dose is a wine-glassful four or five times a day. An aqueous extract is also prepared, which is taken in doses of 30 grains four or five times a day.—*Midland Medical Miscellany*, April, 1884.

Pepsin and the Peptones in the Treatment of Diabetes.—Prof. D. Giovanni (*Gaz. Med. Ital. Prov. Venette*, January 12, 1884) draws attention to the frequent utility of pepsin and peptones in the treatment of diabetes. He cites the following case. A young man, aged twenty, was admitted, and gradually submitted to an exclusively meat diet and lactic acid. Even when all milk, starchy, and saccharine matter were entirely omitted, the urine was as abundant as before, and the quantity of sugar the same, and the patient did not become stronger. The thought occurred to Dr. Giovanni that all the meat and eggs taken were not utilized in the organism. The bodily strength was not in proportion to the force of the foods, neither was the quantity of urea in the urine. The examination of the feces showed a large quantity of meat, unaltered and scarcely masticated. The patient was then placed on ordinary diet, but with a certain quantity of pepsin and peptones, prepared according to the method of Prof. Lussana. (The stomach of a calf is cut in pieces, and placed in a quart of dry white wine; after eight days filtered; the filtrate contains pepsin and peptones.) The patient quickly began to improve in general nutrition, and was able to get up; the quantity of sugar and of urine was lessened. On returning to the meat diet the patient again became worse, and was again better on the substitution of a mixed diet, with pepsine and peptones. Continuing this diet, he so far recovered as to be able to leave the hospital, and a year afterwards, though diabetic still, was in fair health. Professor Giovanni has found equal benefit in other cases from the same treatment, but not in all. He concludes that pepsine and the peptones (Lussana) constitute an element useful in completing the diet of the diabetic,

when defective gastric function helps to exaggerate the effects of the disease on the general health.—*London Medical Record*, March, 1884.

The Action of Antipyrin.—Antipyrin, an alkaloid, which is made synthetically from the Chinolin series, has recently been tried in twenty-seven cases of febrile disorders, by Guttmann, of Berlin. In quantities of from one drachm to one drachm and a half, which are best given in two or three doses at intervals of an hour, antipyrin is a powerful and very certain antipyretic. The effects last usually five hours, and frequently much longer. The temperature slowly and gradually falls one hour after the administration of the first dose, and continues falling after the hourly doses. The fall from a drachm and a half, in three hourly doses, varies from 2½° to 3½° Fah. The duration of the fall varies from six to eighteen hours, that is before the temperature has reached the degree it had before the administration of the drug. The temperature only remains at its lowest point from one to two hours. The rest of the time is occupied in the gradual descent and subsequent ascent of the temperature. Simultaneous with the fall of the temperature, there is a decrease in the pulse rate, and generally profuse sweating. No untoward effects follow its administration with the exception that occasionally it does produce vomiting. It differs from kairine in the following particulars:

1. The fall of temperature is much slower from antipyrin.

2. The subsequent rise in the temperature is also slower, and on this account the ascent is never attended with rigors as it frequently is when kairine has been given.

In many respects its anti-pyretic action more nearly resembles quinine than it does antipyrin. It is, however, a more certain antipyretic than quinine: The dose is, at least, double that of quinine. It is best administered in capsules, on account of its disagreeable bitter taste.—*Canadian Med. and Surg. Journal*, July, 1884.

Beneficial Effects of Convallaria.—After detailing a case in the Practitioner, April, 1884, Dr. Frederick T. Roberts says:

My experience of the use of convallaria in cases of cardiac disease has not hitherto been so satisfactory as the reports of the value of the drug had led me to expect (Practitioner, xxix., 226, 384); but in the case just described, the good effects resulting from its administration were marked and unmistakable. Practically, it might be summed up as a case of mitral obstructive disease, with irregular and inefficient cardiac action; deficient secretion of urine; moderate dropsy of the legs; and considerable ascites. Whether or not the last mentioned symptom depended partly on morbid changes in the liver, is doubtful. The obvious results of the administration of the convallaria were:

1. A distinct improvement in the action of the heart, which became more regular and efficient, while the thrill and murmur became more evident.

2. A considerable and progressive increase in the quantity of urine produced.

3. Rapid diminution and ultimate disappearance of the œdema of the legs and the ascites.

The compound jalap powder helped, no doubt, to get rid of the last symptom; but the other effects noted were, unquestionably, due to the convallaria, and the increase in the quantity of urine must have been an important factor in removing the dropsical accumulation. I have thought it worth while to report this case in support of the value of convallaria in the treatment of cardiac affections, although I do not for a moment believe that it will entirely supercede other drugs. The patient is now practically well, so far as symptoms are concerned, but the signs of the mitral obstructive disease are very distinct.—*Medical and Surgical Reporter*, June 7, 1884.

The Etiology of Jequirity Ophthalmia.—As is well-known, says E. Klein, of London, Sattler and De Wecker have stated that infusion of jequirity causes ophthalmia, by the presence of a bacillus and its spores. He has recently made observations on this subject which lead him to contradict this statement. The jequirity seed were deprived of the perisperm, powdered, and then an infusion placed in a retort sterilized by heat, containing boiled distilled water, and sealed with sterlized cotton. This was a one-half per cent. solution, as used by Sattler. The infusion was made with luke-warm water. After half an hour the infusion was filtered into a sterilized flask through a clean, heated filter. From this filtrate a small quantity was removed by means of a capillary tube, and four flasks, containing sterilized peptone-solution, were inoculated. By means of the same capillary tube the conjunctivæ of four rabbits were inoculated. The inoculated flasks were placed in ovens and kept at a temperature of 35 C. After twenty-four hours, the rabbit showed the typical intense ophthalmia, while the flasks were perfectly clear, there being no trace of cloudiness; furthermore, the inoculation of new cultures and microscopic examination showed no micro-organisms of any kind.

A second and third series of experiments gave the same results, and Klein says that he is forced to the conclusions that Sattler's statement that the jequirity infusion owes its action to the presence of a bacillus is untenable; that Sattler must have used much stronger infusions than he; that he used infusions which had been kept for several days; and that he inoculated the eyes with bacilli when these old infusions were used.—*Centralbl. f. d. med. Wissensch.*, *Medical News*, May 3, 1884.

Painless Escharotics.—From the St. Louis Druggist we learn that Esmarch's painless caustic powder, for the removal of warts, tumors, etc., is composed of:

℞ Arsenious acid, part 1,
Sulphate of morphia, part 1,
Calomel, parts 8,
Pulv. gum arabic, parts 48.

This is to be sprinkled on the cuticle daily. The surface should be denuded either with the knife or a blister. Canquoin's paste, for the same purpose, is made, according to M. Charles, by the following formula:

℞ Chloride of zinc, fused, parts 10,
Alcohol, 60 deg., parts 2
Wheat flour, parts 15.

Rub the zinc chloride to a fine powder, add the alcohol, rub again and incorporate the flower, strongly pressing with the pestle. As soon as the paste is homogeneous, spread with a roller or bottle into sheets about one-eighth of an inch thick, and after a few hours put into a well-corked bottle.

Latour's nitro-chloride of zinc paste, a most excellent escharotic, is made by dissolving 50 parts of chloride of zinc and 100 parts of nitrate of zinc in 80 parts of water. The solution is made by the aid of heat. When it cools, add to each 100 parts of the fluid, 75 parts of wheat flower, and incorporate as in Canquoin's paste.—*Medical and Surgical Reporter*, July 12, 1884.

Pilocarpine in Scarlet Fever.—Although the majority of new drugs that are being daily offered to the profession, are very soon proven to be worthless, we occasionally receive some really valuable addition to our therapeutic resources, and among them pilocarpine holds a high place. In the *Glasgow Med. Jour.* for January, 1884, Dr. Frank Shearer reports a case of scarlet fever, followed by coma and convulsions, treated successfully with pilocarpine, in doses of 1-13th of a grain, hypodermically, and he says:

"Therapeutically considered, it is very interesting to find that when venesection to a very fair amount had failed, the pilocarpine first showed its marked physiological effects, and then stopped the fits, and that after such a lapse of time as quite to put it beyond all reasonable doubt that the venesection had very little to do with the successful result. Indirectly, perhaps, it aided it, as did also the application of the hot pack, which was kept up very industriously; yet both of these methods of treatment were in operation for upwards of one hour and a half without in the least modifying the fits.

"The case is one of those which cheers the physician on his way, and bids him hope and act, however hopeless and desperate the conditions with which he has to contend, may be."—*Med. and Surg. Reporter.*

Achillea Millefolium in Leucorrhœa.—Dr. Lvoff (Vratch, 1884, No. 2, page 28) says that Achillea millefolium (of fam. *Compositæ*, trib. *Senecionideæ*), an old popular remedy, displays a decidedly beneficial action in cases of simple (non-gonorrhœal) whites in children and adult women. His statement is based on the administration of the plant to thirty-four patients, twenty of them being aged from 7 to 15, seven from 15 to 20, and seven from 20 to 30. An infusion of summits or flowers was used. In an editorial note, Prof. V. A. Manassëin states that according to Annenkoff, the leaves and flowers of millefolium possess tonic and stimulating properties, and are used in atony of the digestive organs, in cases of hemorrhoidal and uterine hemorrhage, mucous whites, chlorosis, etc. Ronzier-Soly praised the remedy as an emmenagogue (10 grammes to 500 of boiling water). Chomel and Hufeland gave it as an antispasmodic and in amenorrhœa (20, 30, to 1000). Zanoni prepared from millefolium a bitter, alkaloid-like principle, achilleine, which was later studied by Planta, and was recommended as a remedy for intermittent fever by Puppi.—*Medical and Surgical Reporter*, July 12, 1884.

Guachamaca.—The active principle of guachamaca (apocynæ) is found especially in the outer bark, and in the different layers of the inner bark. It is used in the form of a resinous extract, which is of a sombre gray color, having the outward appearance of curare; it is but little soluble in water, completely insoluble in alcohol, chloroform and ether. Its reactions are those of the alkaloids in general. The marked resemblance between this substance and curare, both physically and chemically, is reproduced physiologically. Its physiological effects have been studied by Schiffer and Sachs. Guachamaca paralyses all the skeletal muscles, leaving intact the respiratory muscles. It acts chiefly on the nervous centres, which are affected much more slowly by curare. Curare is ineffective when administered by the mouth. Sachs observed that the ingestion of the extract of guachamaca in very small doses killed chickens and dogs. Schiffer was forced to give very large doses by the mouth to kill rabbits. In man the effects begin to appear forty minutes after the hypodermic injection of ten milligrammes of the dried extract. Natural sleep is said to be induced by the drug.—*The Lancet*, April 19, 1884.

Eucalyptus in Pulmonary Gangrene.—Extreme fœtidity of breath, cough, dyspnœa, and fever, with dullness in a definite location, tubular respiration and crepitant râles, and black and very offensive sputa, caused Dr. Bonamy (*Le Courier Med.*) to diagnose pulmonary gangrene. The patient was first put upon a mixture containing carbolic acid, but no improvement following, this was replaced by tincture of eucalyptus. In two days after the last prescription, the odor of the breath was much less offensive, and in less than two weeks the patient was cured.—*Med. and Surg. Reporter.*

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine Hospital Service, April 1st, 1884, to June 1st, 1884.

BAILHACHE, P. H., Surgeon. Detailed as Chairman of Board to examine candidate for appointment into the Revenue Marine Service, May 17, 1884.

Vansant, John, Surgeon. To proceed to Empire City, Oreg., as Inspector, April 2, 1884.

Hutton, W. H. H., Surgeon. Granted leave of absence for twenty-five days, May 14 and June 19, 1884.

Miller, T. W., Surgeon. Granted leave of absence to attend the meeting of the American Medical Association, May 1, 1884. To proceed to Pittsburgh, Pa.; Ashtabula, Ohio; Buffalo, N. Y., and Detroit, Mich., as Inspector, May 10, 1884.

Wyman, Walter, Surgeon. To proceed to Crisfield, Md., as Inspector, April 11, 1884. Detailed to represent the Marine Hospital Service as delegate to the American Medical Association, April 17, 1884. Detailed as President of Board for physical examination of candidates for appointment as cadets in the Revenue Marine service, May 20, 1884. To examine cadet graduates, Revenue Marine Service, as to physical qualifications, May, 31, 1884. Detailed as member of commission to inspect United States buildings at quarantine station on the Delaware river, June 16, 1884.

Austin, H. W., Surgeon. Granted leave of absence to attend the meeting of the American Medical Association, May 2, 1884.

Gassaway, J. M., Surgeon. When relieved by P. A. Surgeon Mead, to proceed to Portland, Maine, and assume charge of the service, April 16, 1884. Granted leave of absence for thirty days, May 28, 1884.

Stoner, G. W., Passed Ass't Surgeon. When relieved by Surgeon Gassaway, to proceed to Cairo, Ill., and assume charge of the Service, April 16, 1884. When relieved by Surgeon Gassaway, to report in person to the Surgeon-General, June 20, 1884.

Irwin, Fairfax, Passed Ass't Surgeon. Granted leave of absence for twenty-one days, June 19th, 1884.

Mead, F. W., Passed Ass't Surgeon. When relieved by Ass't Surgeon Devan, to proceed to Philadelphia, Pa., and assume charge of the service, April 16, 1884. Detailed as Recorder of Board for physical examination of candidates for appointment as cadets in the Revenue Marine Service, May 20, 1884.

Carter, H. R., Passed Ass't Surgeon. To inspect unserviceable property at the San Francisco hospital, May 24, 1884.

Wheeler, W. A., Passed Ass't Surgeon. To inspect unserviceable property at the Chicago Hospital, May 24, 1884.

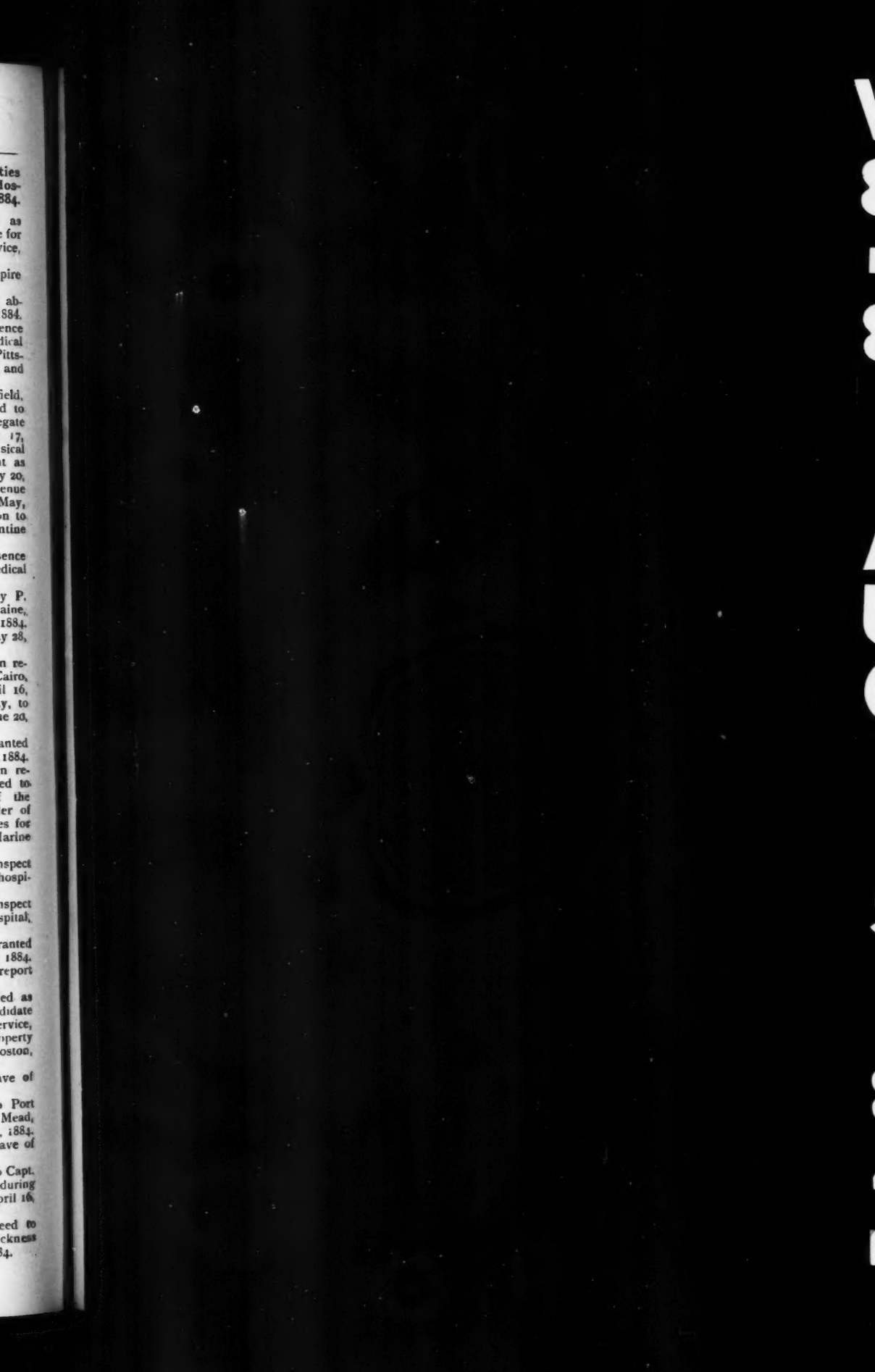
Benson, J. A., Passed Ass't Surgeon. Granted leave of absence for thirty days, April 14, 1884. When relieved by P. A. Surgeon Stoner to report to him for temporary duty, May 19, 1884.

Banks, C. E., Passed Ass't Surgeon. Detailed as member of Board to examine physically candidate for appointment into the Revenue Marine Service, May 17, 1884. To inspect unserviceable property at Baltimore, Md.; New York, N. Y., and Boston, Mass., May 26 and June 2, 1884.

Bennett, P. H., Ass't Surgeon. Granted leave of absence for twenty days, June 28, 1884.

Devan, S. C., Ass't Surgeon. To proceed to Port Townsend, W. T., relieve P. A. Surgeon Mead, and assume charge of the Service, April 14, 1884.

Urquhart, F. M., Ass't Surgeon. Granted leave of absence for thirty days; May 22, 1884.

Yemans, H. W., Ass't Surgeon. To report to Capt. M. A. Healey for duty as medical officer during the cruise of Revenue Cutter "Corwin," April 16, 1884.

Glennan, A. H., Ass't Surgeon. To proceed to Mobile, Ala., for temporary duty during sickness of P. A. Surgeon Goldsborough, June 17, 1884.